FEEDSTUFFS

★ A WEEKLY NEWSPAPER ★

FOR THE FEED MANUFACTURER, JOBBER, BROKER and DEALER

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TV Program on Ag Changes to Highlight AFMA

CHICAGO — A record number of over 1,200 feed men already have pre-registered for the 51st annual convention of the American Feed Manufacturers Assn. and the sixth National Feed Show, according to W. T. Diamond, AFMA secretary. With 10 days to go, Mr. Diamond estimates AFMA will come close to breaking the all-time record of 2,831 delegates registered at the 49th annual convention in 1957. That convention was the last previous one to be combined with the National Feed Show.

AFMA President W. E. Glennon said much of the increased attendance can be attributed to the combination of the two events and the excellent convention program sessions scheduled this year.

(Also see schedule on page 6.)

"Agriculture in Transition"

Mr. Glennon estimated the program highlight of this year's meeting would be the 75-minute, live, color, closed-circuit television program on Wednesday morning's session, May 13. "Agriculture in Transition" will feature consumers, food buyers, processors, producers, feed men and economists discussing problems and demonstrating techniques on a topic of great interest to feed men—production and marketing of protein foods.

This feature will be divided into

(Turn to AFMA, page 89)

Purina Earnings At Record High

ST. LOUIS — Ralston Purina Co. net earnings for the first six months of the current fiscal year hit a new high of $10,256,972 on net sales of $264,058,643. Earnings were $2,244,969, or 33¢ per share higher than for the same period a year earlier, when sales totaled $238,759,065.

This was announced in a quarterly report by Donald Danforth, chairman of the board. The six-month period covered was through March 31, 1959.

Feed tonnage, Mr. Danforth said, "is continuing at over 5-million-ton speed for the year. The increase in volume has helped offset lower margins. The reduction in price has been made as a policy move to aid our customers during this period of overproduction which has resulted in lower returns on feeding operations.

"It is hoped that a reasonable and orderly reduction in the number of animal units being raised will correct this situation in the near future."

Mr. Danforth noted that "soybean operations have been unusually profitable this six months. The four plants which we acquired last fall have made this a far more important division of our total business.

"The Ralston division, which now includes New Purina Dog Chow, has shown substantial growth in all items. Our popular new cereal, Corn Chex, will have national distribution by the end of September."

FEEDSTUFFS *Features This Week*

POULTRY NUTRITION: A summary and comments on papers presented at the 1959 Informal Poultry Nutrition Conference appear on **page 10.**

TURKEYS: An article covering recent developments in turkey feeding experiments at Oregon State College starts on **page 28.**

FEED FORMULATING: How electronic computers are used in formulating feeds is told on **page 38.**

INTEGRATION: Comments on integration of swine production appear in an article on **page 70.**

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World's Biggest Egg Plant Planned In Pennsylvania

JOHNSTOWN, PA.—The door has been opened here for the construction and operation of the largest single-unit egg factory in the nation.

Huge is the word for the proposed commercial egg plant. If development comes off as planned, the $9,000,000 operation will:

- House a million birds under one roof covering more than 15 acres.
- Produce at least 14,000 cases of eggs a week.
- Consume more than 100 tons of feed a day.
- Have the world's largest air-conditioning system—bigger than the Pentagon's.

The organization behind this mammoth operation is Best-of-the-Nest, Inc., which Howard Hill, secretary of the Greater Johnstown Chamber of Commerce, said already has a five-year contract with Pride of Pennsylvania, an egg brokerage firm, for delivery of its egg production to the New York market. In fact, Mr. Hill

(Turn to EGG PLANT, page 89)

Spencer Kellogg Buys Indiana Firm

BUFFALO — Spencer Kellogg & Sons, Inc., Buffalo, has announced the purchase of Purcell Seed Co., Evansville, Ind.

Purcell Seed deals in both agricultural seeds and animal feeds. It will be operated as a Spencer Kellogg subsidiary.

Last year, Spencer Kellogg bought the Staley Milling Co. In 1957, Spencer Kellogg acquired the Beacon Milling Co.

The 33-year-old Purcell company will come under the jurisdiction of the East St. Louis operation of Spencer Kellogg's Staley Milling division. Joseph A. Cooper, Staley division vice president in charge of the East St. Louis mill, will be president of Purcell. James A. Purcell, who has headed the Evansville company, will be vice president.

The annual sales voume of Purcell reportedly has been in the $450,000 range. Spencer Kellogg plans to expand and modernize the Indiana company's feed mill.

Purcell not only will manufacture its own line of feeds but will merchandise Staley Milling feeds made in the Staley East St. Louis plant.

Feed Industry Changes Forecast At Merger Convention in Texas

By MARTIN E. NEWELL
Feedstuffs Staff

FORT WORTH, TEXAS — Many changes can be expected in the feed industry in the next few years, W. E. Glennon, president, American Feed Manufacturers Assn., told Texas grain and feed men at their annual meeting in Fort Worth April 24-25. Mr. Glennon was a featured speaker at the convention which marked the merger of the former Texas Grain Dealers Assn. and the Texas Feed Manufacturers Assn. into a new organization known as the Texas Grain & Feed Assn.

Mr. Glennon said that farm specialization and integration of farm-to-market operations will continue to increase, but this trend is no fundamental threat to medium and smaller sized companies which, he said, will continue to compose an important part of the feed industry. He predicted, also, a continued trend toward small push-button mills producing for local areas and more delivery of feed in bulk.

There is no monopoly or threat of monopoly in the feed industry, Mr. Glennon declared. He said the six fastest growing feed manufacturing firms are not numbered in the biggest 10 firms in the industry.

Looking into the future at other developments, Mr. Glennon said there would be fewer feed dealers, but that

(Turn to TEXAS MERGER, page 85)

N.J. Group Asks Help at Egg Hearing

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — A large delegation of embittered New Jersey egg and poultry producers this week demanded at a House committee hearing on poultry and egg problems that the federal government provide "quickie relief" from what the group described as a very unsatisfactory profit situation.

The move was seen as another "beat-Benson-over-the-head" venture, dear to the House Agriculture Committee, which was put into motion with an assist from Congressman Charles Brown (D., Mo.).

The large delegation, heavily salted with farm housewives and wearing insignia reading "Save the Small Family Farm," had as its spokesman John Wagner, a local politician and an egg producer who asked the House subcommittee to provide immediate relief for his group in these terms:

1. USDA to buy fowl off farms to reduce production of eggs.
2. Issue food stamps for underprivileged and relief.
3. Industry to accept production controls provided U.S. would put a price floor under eggs at cost of production.
4. Maintain a shell and dried egg buying program.

Price-Fixing Comment

This New Jersey industry spokesman told the committee that New Jersey producers suspected that there was organized price fixing among egg buyers, since the published prices in

(Turn to EGG HEARING, page 85)

New Feed Additive Hikes Steer Gains, College Reports

PULLMAN, WASH.—Steer weight gains were increased 24% and feed efficiency was improved 12% by a new feed additive, Washington State College researchers reported at the college's annual Beef Cattle Day.

The new chemical was described as a "diphenyl hexane derivative which does not produce hormone-like effects." The chemical name is 3,3' diallylhexestrol (called diallyl for short).

Dr. I. A. Dyer, livestock nutritionist at Washington State, said that the additive, in addition to increasing steer weight gains and efficiency over the control animals, improved carcass quality. Fat marbling was reported 12½% greater in diallyl-fed steers than in the control group.

"Diallyl did not produce any of the side effects associated with some hormone growth stimulants," a college report said. "A discount of up to $1.50 cwt. is sometimes made by pack-

(Turn to FEED ADDITIVE, page 85)

FEEDSTUFFS

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EDITORIAL STAFF—George L. Gates, Editor; Roger Bergland, Managing Editor; John Cipperly, Washington Correspondent; Emmet J. Hoffman, Merchandising Editor; John S. Franklin, James E. Sharon and James H. Ross, Editorial Assistants.

WASHINGTON CORRESPONDENT—John Cipperly, 604 Hibbs Building, Washington, D. C., Telephone, Republic 7-8534.

ADVERTISING STAFF—Wilfred E. Lingren, Advertising Director; Carl R. Vetter, Advertising Department Manager; Bruce A. Kirkpatrick, Advertising Production Manager; Leland C. Hubert, Assistant Advertising Production Manager; R. Dale Swenson, Promotion Manager.

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In the Frying Pan

CURRENT EGG PRICE TROUBLES, as might have been expected have set a fire under the Washington investigatory skillet, and in the scramble for making political points, there is the danger that some of the investigators may attempt to serve up a dish of unpalatable price and production controls.

This danger does not appear to be imminent, but it is nevertheless prudent to be wary of possible developments in the political kitchen, where the unexpected often should be expected. The recipe may vary from time to time, but the method of attempting to fry a political foe has a familiar pattern. Washington observers regard the current investigation of the egg and poultry situation by the House Agriculture Committee as largely an attempt to discredit the secretary of agriculture, Ezra Taft Benson. The concern of the feed and poultry industries in this matter is the possibility that in attempting to rap Mr. Benson, opponents may promote legislation which would not be in the best interests of future poultry production.

AS REPORTED ELSEWHERE in this issue, some specific proposals have been presented at the committee hearings for, among other things: 1. Production controls, with provision that the government put a price floor under eggs. 2. Establishment by the government of minimum prices on mercantile markets for eggs.

Production controls as a means of solving farm commodity price problems have been so thoroughly discredited that a venture in this direction in the poultry and egg industries would appear to be out of the question. Yet, some insistent demands for them have been made in the past, particularly during the hearings on poultry industry problems conducted by the House Small Business Committee. Renewal of these suggestions could, under present circumstances, attract broader attention. There are more egg producers than there are broiler producers, and political temptation to tamper with farm economics has a tendency to be greater or smaller in proportion to the number of voters involved.

GOVERNMENT FARM PROGRAMS for livestock and poultry have been largely held to discretionary actions and temporary activities to help meet occasional distress situations. This is quite in contrast to mandatory, rigid programs written into law for some crops. While some products under rigid government programs have lost markets—and income for farmers—the livestock industry has experienced growth of markets and greater income. Also, costs to taxpayers for livestock programs have been comparatively small, in contrast to the billions poured into crop programs without bringing solutions to major crop problems.

True D. Morse, under secretary of agriculture, commented recently on this: "Production and marketing quotas have been avoided on the livestock enterprises. The meat animal and poultry industries will continue to expand their markets, thrive and move ahead with great progress, under the traditional freedom and self-reliance that have brought to those industries the present great achievements that are the envy of the world."

There is no denying that egg producers are in trouble, and there is no intention here to minimize the seriousness of the current low egg market or low broiler prices. Economic hardship in any segment of agriculture, if prolonged, is not desirable, but attempts to correct such situations by artificial means also are not desirable.

CORRECTION CAN AND SHOULD come through normal workings of supply and demand, and at this time there is already evidence that the undeniable forces of economics are moving toward a correction. While production of chicks for flock replacement are reported to be running ahead of last year, counter to earlier predictions, hatchery sources indicate that cutbacks on the late season hatch will likely hold placements for the year more in line with expected needs. Cancellations of orders for chicks have been widespread. Some people in the hatchery industry believe a 5% cutback for the year is a possibility.

On the broiler front, under price siege for much longer than the egg front, there also are some hopeful signs that a slowdown in the rate of increases is developing. "Broiler Growing" reports that bank loans for broiler financing are tightening up, that some bankers have told contractors that they would have to tighten up considerably on credit for broilers and that they would recommend cutting out financing altogether. Also, the publication reports that some contractors have been forced to stop operations, although production levels have been maintained by increases from larger operators or direct financing from feed companies.

Concerning the latter, there are trade reports also that some of the larger feed concerns are turning down more requests for financing. One contractor, denied further funds, was said to have expressed relief that a decision had been made for him to hold back on production.

These are only scattered reports, but they should have some weight. As has been often observed, the reason broiler cutbacks have not developed is because "not enough people have been hurt badly enough or long enough." A bigger collective "ouch" may be echoing in the industry before long.

However, the hurt involved in such corrections made through the free workings of the economy is to government-imposed controls as a hangnail is to a broken leg.

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

Some improvement was noted in demand during the past week, but the feed business is still rather spotty. Chick feed sales are still not what they were a year ago, although some pickup was noted during the week. Egg feeds are dragging slightly following depressed egg prices. Dairy and cattle feed sales are tapering in some areas where pastures are returning, but are still fairly good in the northern part of the country. Pig starters are also moving well. It is believed that a large number of feeders are using more home-grown grains than they were earlier as they attempt to stretch their feed dollars. The wholesale feedstuff price index was 86.2 this week, compared with 87.8 the previous week and 86.7 a year earlier. The feed grain index was 69.1 compared with 70.7 a week earlier and 70 a year earlier. The hog-corn ratio, based on Chicago prices, was 12.6. (Ingredient prices in detail on pages 98-100.)

Northwest

Another week of spotty demand was reported by feed mill representatives. Some have found business improved this week while others report it to be down in volume.

The fact that assessments for taxes are made around May 1 in part of the area is reported to have had an influence on demand. Neither dealers nor mixers want to hold large inventories, and business has dragged as a result. Completion of assessments is expected to bring an increase, however.

Representatives who find their business slower report that chick starters and egg feeds are suffering the most. Cattle feeds are tapering off and dairy is tapering for some firms and holding up well for others.

Reports of chick cancellations continue, and the general report is that small flock owners apparently will hang onto their old hens until they quit laying.

Representatives reporting good business say most lines are moving well, and pig starters are moving very well. Those reporting improved business said the week started out well and continued that way in contrast to the buying in spurts which has characterized demand through most of April.

Prices will be down slightly next week.

Southwest

Feed business showed some variations this week, but on the whole averaged about the same as in the previous period. Some mills found their sales totals a bit higher and others lower, some started the week with business good and tapered off at the end, while others encountered a reversed situation. Volume is not quite as good as it was a year ago in many instances, which is partly attributable to a later start this spring.

The principal lagging item seems to be chick feed sales, which are running about 5% behind last year. This is primarily true of the farm flock replacement market, as broiler chicks are being placed in good volume in most, but not all areas.

The brightest item on the list this week for most mills was pig starter, which was moving in a volume well ahead of last year and offsetting the unhappy poultry situation.

Some seasonal improvement occurred in turkey feeds, but the season as a whole is later than normal and poult prices are reflecting distress conditions in some places.

Mill operations were about normal, and practically all companies ran a full five days. A few went into the sixth day. Prices were lower as a result of declines in many items, offsetting some increases in grains. Cards showed mark downs in the range of 50¢ to $2 on various items.

Northeast

Feed manufacturers were booked for a full week early in the period as sales picked up after the preceding week's slow turnover. One spokesman attributed the upturn to consumers who had used up their supplies in anticipation of an earlier spring.

Meanwhile, dairy feed ingredient prices broke as the grass season approached. Recent rains and warm weather will stimulate pastures, but observers say that grazing still is about three weeks away.

Egg mashes continued to be the mainstay of the market. Good demand for turkey feeds is expected later on because growers have put a lot of poults in.

Egg prices continued to slide a little, but broilers firmed up slightly in Delmarva and in the Shenandoah Valley. Other areas held unchanged. Milk will give ground as grass gets closer.

Bran and middlings led the decline in ingredients during the week but a combination of events, including the opening of the St. Lawrence Seaway, affected the general market.

(Turn to MARKETS, page 90)

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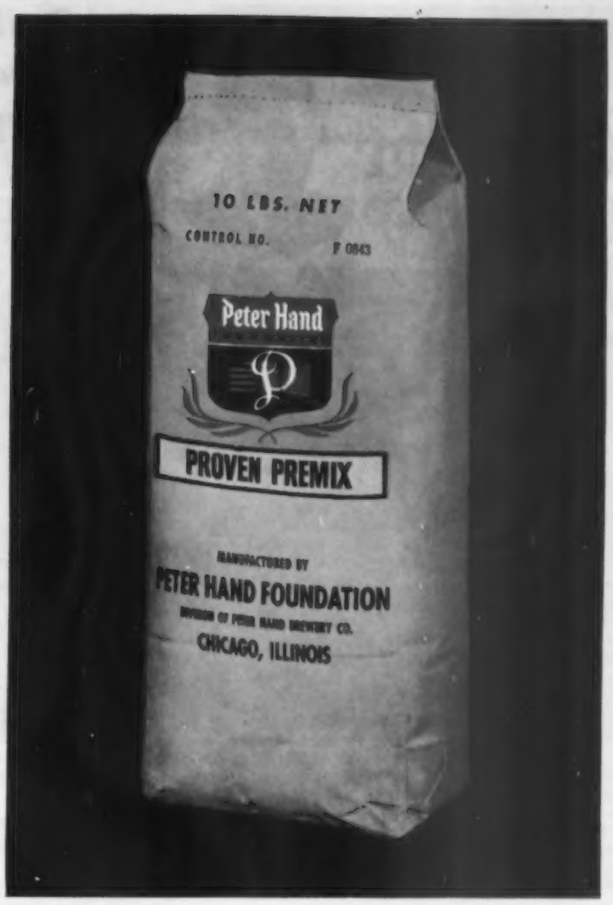

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CAPITAL COMMENT

BY JOHN CIPPERLY

Corn Disappearance

WASHINGTON—Last week's stock position report disclosing almost 1 billion bushels of corn disappearance in the second quarter of this crop year touched off unreasonable conclusions that: (1) The 1958 crop had been over-estimated or (2) there has been some other basic error in the USDA statistical decisions.

(Also see story and table on this page.)

There is no doubt that from the April stock position report, USDA now hopes that the disappearaance of the corn crop has more than wiped out the increase of the 1958 corn crop over that of 1957.

Comments reaching here from economic specialists and others contend that this is a most bullish aspect of late corn market futures contracts, contending that the free market supply of corn at the close of the crop year will be tight.

This surface examination of the April 1 crop report does not stand the full light of objective study. Conversations with objective USDA observers in this field of grain and animal livestock dismiss such hasty conclusions.

Not a True Measure

It is pointed out that the heavy first-half-year disappearance of corn, which truly shows that greater corn use is about the same as the increase of the 1958 crop over that of 1957, is not a true measure.

These objective officials say that the first solid measure of corn disappearance can only be ascertained from the second quarter of the corn crop year. They contend that the first quarter of a big corn crop year out-turn will result in heavy hogging down of the crop and loss in harvest, thereby making for a heavy disappearance in the first quarter of a new crop year.

These officials agree that there may be some minor errors in the crop production report — an error which is insignificant in the over-all — but they decline to admit that there can be any even minor error in the stock position report.

This all adds up to the conclusion that poultry, swine and cattle have eaten up almost one billion bushels of corn in the last quarter of the new crop year.

The heated reports from special pleading observers that the crop stock position report indicated a tight later position in corn, are not confirmed at any avenue at USDA. On the contrary, objective observers indicated that things are about on an even keel.

They say that the heavy first-half-year disappearance of corn reflects seasonal peculiarities such as hogging down of a big crop, or liberal use of new crop corn.

As to their version of the more solid statistical material as found in the second quarter of the crop year, these officials, even those with slide rules in their coat pockets, ultimate-

(Turn to COMMENT, page 8)

Howard H. Gordon

GENERAL MANAGER—Howard H. Gordon is the new general manager of Southern States Cooperative, Richmond, Va. (Feedstuffs, April 25). He succeeds the late O. E. Zacharias, Jr., who died April 7. Mr. Gordon has been assistant manager of the cooperative since 1948. In 1953, he was named head of the Production & Marketing Administration and later was made president of the Commodity Credit Corp. and administrator of the Commodity Stabilization Service. He resigned from government service the following year and returned to Southern States.

Missouri Hears Report Of Appropriations Cut

KANSAS CITY, MO.—It is reported, according to a bulletin of the Midwest Feed Manufacturers Assn., that the Missouri Senate appropriations committee is attempting to pare down all appropriations to 1958 levels or less for all departments—including feed inspection.

"If this materializes," said the bulletin, "the new feed lab, badly needed, will be out."

Another quote from the bulletin: "Feed inspection fees collected in Missouri from feed manufacturers are adequate to cover cost. Appropriations committee should know that you, as a feed manufacturer, are paying the bill and that adequate feed control requires adequate equipment."

Heavy Supplies Cut Oilseed Meal Futures

MEMPHIS — Oilseed meal futures declined on the Memphis Board of Trade the past week, resulting from a slow nearby cash oil meal demand with supplies rather burdensome.

Feed business was termed spotty and, while generally satisfactory, it has not attained the volume needed to absorb record production of feed ingredients.

During the week, trade interests were modest sellers of deferred old crop positions.

Unrestricted soybean oil meal closed April 29 25¢ to $1.45 ton lower than on April 22, Eastern Trunk Line soybean oil meal 50¢ to $1.75 lower, bulk solvent cottonseed oil meal unchanged to 75¢ lower, and sacked old process cottonseed oil meal unchanged.

Trading for the period amounted to 7,100 tons of unrestricted soybean oil meal and 400 tons of bulk solvent cottonseed oil meal.

Broiler Demand, Price Increase

SALISBURY, MD. — Demand for broilers picked up last week in Delmarva. More birds went to market, but the price was better.

The average price paid on the farm last week was 17.53¢ lb., compared to 16.28¢ the week before. Delmarva growers sent 4,252,000 broilers to market during the week. This was 13% more than the week before, and 9% more than the corresponding week of 1958.

Nationwide, hatcheries in 22 reporting states last week cut their production. The egg set was 47,410,000 eggs. This was 2% less than the previous week, and 4% less than the corresponding week a year ago. Decreases in the number of eggs set from the previous week were reported in 15 of the 22 states. Sharpest decreases from the previous week occurred in North Carolina, Georgia and Maryland.

Broiler growers in the 22 states placed 35,992,000 chicks. This was slightly less than the previous week, but 7% above the corresponding week a year ago. Decreases were reported for 11 states, and there were increases in 11 states, compared to the previous week. Largest decreases from the previous week occurred in Delaware, Pennsylvania and Georgia.

DIVIDEND DECLARED

FT. WAYNE, IND.—Directors of Central Soya Co., Ft. Wayne, have declared a dividend of 50¢ a share on the company's common stock, payable May 15 to stockholders of record May 2, 1959.

Eugene E. Woolley

Eugene Woolley Heads GMI Feed Division

MINNEAPOLIS—Eugene E. Woolley has been named general manager of the Larro feed division of General Mills, Inc., Minneapolis, succeeding David H. McVey, who resigned recently to practice tax law in Minneapolis. Mr. Woolley has served as director of production for the company's flour division since 1956.

Mr. Woolley, whose appointment was announced by C. H. Bell, president of General Mills, joined the company in 1941 after graduation from Kansas State College, and brief service with the U.S. Department of Agriculture.

Starting as a trainee at General

(Turn to WOOLLEY, page 85)

Grain Stocks at Record Level

WASHINGTON—Stocks of all feed grains, wheat and soybeans in all positions on April 1 maintained the recent pattern of record levels, according to the U.S. Department of Agriculture.

Stocks of feed grains—corn, oats, barley and grain sorghums— totaled 119 million tons, more than a tenth above the previous record a year ago. Soybean stocks also were up sharply.

Stocks of Grains, April 1, 1959, with Comparisons

Grain and position		April 1 av.: 1948-57	April 1 1958	Jan. 1 1959	April 1 1959
		1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
WHEAT	On Farms 1/	227,285	176,737	456,581	282,989
	Terminals 2/	228,924	335,916	422,047	419,579
	Commodity Credit Corp. 3/	42,671	74,571	87,230	77,029
	Int. Mills, Elev. & Whses. 1/4/	369,670	535,332	854,305	760,417
	TOTAL	868,545	1,122,556	1,820,163	1,540,014
RYE	On Farms 1/	5,211	7,927	13,048	9,600
	Terminals 2/	5,200	2,337	4,973	3,374
	Commodity Credit Corp. 3/	13	6	205	124
	Int. Mills, Elev. & Whses. 1/4/	3,245	4,948	6,259	5,069
	TOTAL	13,670	15,218	24,485	18,167
CORN	On Farms 1/	1,401,675	1,680,943	2,695,593	1,815,865
	Terminals 2/	54,737	108,385	97,223	106,482
	Commodity Credit Corp. 3/	307,374	618,762	633,545	578,374
	Int. Mills, Elev. & Whses. 1/4/	119,981	399,788	499,099	490,583
	TOTAL	1,883,767	2,807,878	3,925,860	2,991,704
OATS	On Farms 1/	484,458	540,627	952,566	587,576
	Terminals 2/	12,424	10,703	25,526	20,103
	Commodity Credit Corp. 3/	978	163	3,978	3,598
	Int. Mills, Elev. & Whses. 1/4/	36,398	46,070	66,954	55,323
	TOTAL	534,258	597,563	1,049,024	666,600
BARLEY	On Farms 1/	88,924	149,981	225,368	151,372
	Terminals 2/	19,162	25,956	47,061	43,518
	Commodity Credit Corp. 3/	786	251	9,361	8,149
	Int. Mills, Elev. & Whses. 1/4/	45,438	87,022	108,312	85,301
	TOTAL	154,310	263,210	390,122	288,340
SORGHUM GRAIN	On Farms 1/	5/	97,360	193,790	102,356
	Terminals 2/	19,708	96,725	128,642	126,116
	Commodity Credit Corp. 3/	379	15	2,549	2,530
	Int. Mills, Elev. & Whses. 1/4/	46,752	230,902	397,000	381,509
	TOTAL	5/	425,002	721,981	612,511
SOYBEANS	On Farms 1/	62,630	117,445	199,925	124,623
	Terminals 2/	9,936	17,977	42,767	26,839
	Commodity Credit Corp. 3/	85	0	1,954	1,895
	Processing Plants 6/	45,809	57,983	98,610	73,300
	Int. Mills, Elev. & Whses. 1/4/	24,831	62,301	126,005	96,031
	TOTAL	143,291	255,706	469,261	322,688
FLAXSEED	On Farms 1/	10,054	6,897	15,838	13,629
	Terminals 2/	6,809	1,899	1,512	773
	Commodity Credit Corp. 3/	0	0	0	0
	Int. Mills, Elev. & Whses. 1/4/	8,041	6,773	13,536	9,991
	TOTAL	24,905	15,569	30,886	24,393

1/ Estimates of the Crop Reporting Board.
2/ Commercial stocks reported by Grain Division, AMS, at 44 Terminal cities.
3/ Owned by CCC and stored in bins or other storages owned or controlled by CCC; other CCC-owned grain is included in the estimates by positions.
4/ All off-farm storages not otherwise designated, including merchant mills.
5/ Not available for April 1 prior to 1957.
6/ Firms reporting crushings and stocks of soybeans to the Bureau of the Census.

Are you wasting phosphorus with out-of-date feeding recommendations?

PRESENT-DAY recommendations on the levels of phosphorus to use in poultry and livestock feeds are not clearly defined. They have been based on many different phosphorus sources. And in many cases, the requirement differs with each type of phosphorus fed.

The difference between analytical reagent (non-hydrated) and USP (hydrated) grades of dicalcium phosphate clearly illustrates this point.

Both have been used in the past to determine phosphorus requirements. Yet research shows there is a great difference in the availabilities of these two products for different animals. The phosphorus requirement based on the reagent grade will be much higher for both chicks and turkeys.

For example, Beltsville White Turkey poults on a purified diet receiving .55%P of analytical reagent grade of dicalcium phosphate made poor gains and suffered 100% mortality at 3 weeks. Meanwhile, poults receiving the purified diet with .55% of USP grade dicalcium phosphate made an average weight gain of 268.9 grams at 3 weeks, with 100% livability.

This work shows that feeding recommendations based on the reagent grade of dicalcium phosphate . . . and other phosphate products of low availability . . . may be much higher than actually needed.

Even more important, the proven high availability of International's Dynamic DYNAFOS, a chemically processed dicalcium phosphate, makes many old recommendations out-of-date . . . and wasteful.

Dynamic DYNAFOS meets nutritional needs with fewer pounds of product

Dynamic DYNAFOS has been developed specifically for the feed industry. Proven high biological availability and low calcium content mean you can count on each pound of Dynamic DYNAFOS to deliver much more usable phosphorus.

Exacting quality and biological control tests enable International scientists to further improve the superior performance of Dynamic DYNAFOS.

And because you need less Dynamic DYNAFOS, you actually cut formulation costs. Unique beaded form makes handling and mixing better than ever.

Write or wire your International representative for details.

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INTERNATIONAL MINERALS & CHEMICAL CORPORATION

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5-59

AFMA Convention, Feed Show Schedule

May 10-13, Conrad Hilton Hotel, Chicago

SUNDAY, MAY 10

P. M.

12:00-6:00—Registration desks open, Exhibit Hall Lobby.
1:00-7:00—National Feed Show "Advance Look"; the "admittance by badge" condition waived for this session.
2:00—AFMA Executive Committee meeting.
6:00—Nutrition Council Executive Committee meeting.
7:30—Purchasing Agents Executive Committee meeting.

MONDAY, MAY 11

A. M.

9:00—AFMA Nutrition Council meeting.
AFMA Executive Traffic Committee meeting.
AFMA Purchasing Agents meeting.
9:30—AFMA Board of Directors meeting.
10:30-12:30 p. m.—Open meeting of Committee of Purchasing Agents; talk by D. N. McDowell, director of agriculture, Wisconsin and executive committee chairman, National Association of State Departments of Agriculture.

P. M.

11:00 a.m.-7:00 p.m.—National Feed Show exhibition.

TUESDAY, MAY 12

A. M.

8:00—Meeting of Industry Advisory Committee to Feed Technology program.
9:30-12:30—Official convention program, events planned as follows:
I. S. Riggs, chairman of the AFMA board—"AFMA's Role in the Unfolding and Expanding Feed Industry."
Presentation of newly-elected AFMA board members.
Recognition to L. E. Bopst, past secretary, Association of American Feed Control Officials.
Recognition to three outstanding college nutrition research award winners.
D. G. Williamson, secretary, Conference of American Small Business Organizations—"What About Small Business?"
John M. Fox, president, Minute Maid Corp., "What It Takes to Be a Manager."

P. M.

12:30—Luncheon honoring press, radio, TV, members of College Feed Survey Committee, other committees of the AFMA and special convention guests, Williford Room.
12:00-6:00—Feed Show exhibition opens.
2:00—Meeting of AFMA Sales Council Executive Committee.
6:00—The Golden Hour (Successor to the Sunshine Hour), social event for all registrants and their ladies.

WEDNESDAY, MAY 13

A. M.

10:00-12:30—Official convention program, events planned as follows:
"Production to Specification," a 75-minute, closed circuit telecast on problems and techniques of producing and marketing meat, milk and eggs.
Presentation of national winners of: Animal Agriculture Award for editors; Animal Agriculture Award for Farm Directors.
Dr. Nicholas Nyaradi, director, Institute of International Studies, Bradley University, "Free Enterprise or Disaster."

P. M.

12:00-3:00—Feed Show open.
2:00—AFMA Feed Control Relations Committee meeting.
6:00—Joint Dinner for AAFCO-AFMA Feed Control Relations Committee.
8:00—Open meeting to discuss industry problems relating to feed control, jointly sponsored by AFMA and Association of American Feed Control Officials, Private Dining Room 4.

New Construction Firm Incorporates in Omaha

OMAHA, NEB.—A new firm, Mid-States Construction Co., has recently been incoporated by Gordon Erickson and Wayne Skinner, Omaha. The company is an outgrowth of Mid-States Equipment Co., which Mr. Erickson started five years ago and which will continue to operate as a separate firm.

Mr. Skinner, president of the new company, is a registered professional engineer with more than 15 years experience in concrete and steel design and construction supervision. Mr. Erickson, secretary-treasurer of the firm, is a graduate engineer who has been specializing in mill and elevator construction work for the past five years.

Mr. Erickson's firm lays claim to having built the first small custom mill of concrete in Iowa, thereby sharply reducing fire insurance rates. Right now his firm is completing an 850,000-bu. concrete elevator at Rising City, Neb.; a 320,000-bu. concrete elevator at Osceola, Neb.; a concrete annex at Cedar Bluffs, Neb., and a 25,000-ton steel inert gas storage installation at Brady, Neb., for Kaw Dehydrating Co. A number of other feed plants have been built by Mid-States, along with many gas storage installations for dehydrators.

The new firm is expanding the scope of its operations. Two additional slip-form crews are being formed and construction superintendents with many years of experience in elevator and mill construction work are being added.

Offices for Mid-States Construction Co. are at 4802 Douglas, Omaha.

Nebraska Plant Back in Production

HUMBOLDT, NEB.—The O. A. Cooper Co. feed plant here was back in production April 27, only about a week after a fire which originally had been expected to keep the plant shut down for three weeks.

While the plant was closed, some of the Humboldt workers went to the firm's Beatrice plant to help increase production there. At the same time, part of the Humboldt crew was busy cleaning up after the fire, which had centered around hopper scales over the batch mixers in the mill.

Guy L. Cooper, Jr., president of the company, praised the "teamwork, loyalty and attitude" of the men for carrying on the production and getting the Humboldt mill back in operation so quickly.

D. G. Williamson

AFMA SPEAKER—One of the speakers scheduled for the coming American Feed Manufacturers Assn. convention in Chicago will be D. G. Williamson, who will speak on "What Chance Has Small Business?" Mr. Williamson, president of Williamson Adhesives, Skokie, Ill., is secretary of the Conference of American Small Business, and is a leader in the fight to help small business survive. He will speak during the morning program, May 12.

Agricultural Marketing Management School Set

RALEIGH, N.C.—An extension school for top management of agricultural marketing firms will be held at the College Union Building of North Carolina State College here May 11-15.

College and industry marketing specialists will present discussions during the conference covering management concepts, management planning, decision making, management tools, human relations and sources of management information.

Registration is $25 including five luncheons, the annual banquet, coffee breaks, notebooks and subject matter material. The school is limited to the first 30 applications received.

The school is to be conducted by the North Carolina Agricultural Extension Service in cooperation with the Federal Extension Service, Small Business Administration, the University of North Carolina school of business administration and the North Carolina State College division of college extension.

Expansion in Molasses Announced by Cargill

MINNEAPOLIS—Realignment in Cargill, Inc., for expanded sales and service of molasses products has been announced by H. Robert Diercks, vice president.

Arthur Heideman

He said the molasses department, now operating within the firm's grain division under the direction of J. Y. Edwards, is adding eight branch sales offices and a customer service consultant. This consultant is Arthur G. Heideman, Chicago, former technical director.

In addition to sales staffs at Cargill's molasses terminals in Chicago, Memphis, Baton Rouge and Savage, Minn., sales outlets are being set up at the company's grain division offices in Cedar Rapids, Washington and Ft. Dodge, Iowa, and at Kansas City, Omaha, St. Louis, Peoria and Louisville.

GTA to Construct New 500-Ton Mill Near Sioux Falls

ST. PAUL, MINN.—Farmers Union Grain Terminal Assn., St. Paul, has announced the site for the first of six $1 million feed plants to be built in a five-state area covering Minnesota, the Dakotas, Montana and part of Iowa.

The plant, which is to have a capacity of 30 tons an hour, will be erected on a 20-acre tract at Ellis, S.D., five miles west of Sioux Falls, M. W. Thatcher, general manager of the cooperative, announced this week. Emil Loriks, Arlington, S.D., president of the GTA, and August Dahme, Mina, S.D., a director, approved selection of the site in the Sioux Falls area.

Work will begin in June. T. E. Ibberson Co., Minneapolis engineering and contracting firm, is general contractor. Plans call for a one-story, horizontal plant with 30 tons an hour, or 500 tons a day, officials said.

J. V. Mayhall, manager of the GTA feed division, said the first unit will be a warehouse, which he said will give the cooperative more efficiency in distribution of feed in the South Dakota area from the present Minnesota plant at Montevideo. The feed plant will be in operation early in 1960, the announcement said.

"The South Dakota feed mill will be the first of six units planned as an integrated feed manufacturing operation to service the five-state area," the announcement said. "Each of the mills will cost $1 million, at present prices. They will be built within the next three or four years."

The new South Dakota plant will be located on the Chicago & North Western Railway, and will be served by two major highways. The announcement said the town of Ellis was selected because of the new network of highways fanning out in that region, and the heavy movement of trucks in and out of Sioux Falls.

Mississippi Cooperative To Open 'Egg Center'

CANTON, MISS.—Local civic leaders will join officials of the Mississippi Federated Cooperatives here May 7 in the formal opening of the MFC Egg Center.

At the egg plant, located in the MFC warehouse, visitors will see modern egg receiving, grading and refrigeration equipment.

Clyde McGee is manager of the plant, which already is handling hundreds of cases of eggs daily. When full production is reached, the plant will handle 34,000 cases of eggs during a five-day week, and will employ 80 people, officials said.

Establishment of the Egg Center in Canton, one of only three in the state, was made possible through a Chamber of Commerce program through which $75,000 in MFC stock was sold in this community.

Other MFC Egg Centers are to be in Hattiesburg and New Albany. As these MFC eggs are marketed throughout the South, the new "Five Star" brand will be imprinted.

Thompson-Hayward Plant Damaged by Fire

KANSAS CITY, KANSAS—Three men were killed and five injured April 23 when an explosion in the mixing tanks at Thompson-Hayward Chemical Co. here destroyed much of the plant.

Robert F. Thompson, president of the company, said damage would amount to nearly $1 million.

The block-long, one-story building was leveled when a major explosion occurred in a tank containing 3,000 gal. of weed killer, followed by several other smaller blasts. In all, eight tanks were destroyed.

PENB Renews Vigor; To Meet on Broiler Question

CHICAGO—Officials of the Poultry & Egg National Board feel that the group's recent annual meeting indicated the 20-year-old organization is taking a more aggressive stand in serving the egg and poultry industry. It was noted that income for the first quarter of 1959 was up nearly 70% compared to the same period a year earlier and membership in PENB's investment program had reached approximately 500.

Whether PENB should cease promotion of broilers, as was recommended to the organization's board of directors at the meeting, is a question which stirred up considerable interest and comment.

The 177 persons at the meeting heard PENB officials make known PENB's intentions of serving professional leaders and consumers "with accurate information on eggs and poultry meats for the purpose of creating a more active demand for all poultry products."

Lloyd H. Geil, general manager, reported that income for the first quarter this year jumped to $62,601, an increase of $22,618 over the same quarter a year ago. Ken Heideman, financing and membership relations director, said membership in the new investment program had reached approximately 500, with some investors making an annual investment of $15,000-$20,000.

Major changes in bylaws made possible "more equitable representation of commodity investment interests" in PENB on the board of directors. The egg segment of the poultry industry now has 15 representatives on the board instead of six. Distribution in other segments is: Broilers, 3 instead of 6; turkeys, allied industry and "at large," six each, no change.

(Turn to PENB, page 90)

Liggett to Be Part Of Midwest Alfalfa

KANSAS CITY—Ray Bert, president of Midwest Alfalfa Blenders, Inc., and Wilson Liggett of the Harry M. Liggett Co., announced this week that the Liggett firm will become a part of Midwest Alfalfa Blenders.

The Liggett alfalfa dehydrating plant is located at Concordia, Kansas, in the Republican River Valley. It is a bulk pellet operation. All of the Liggett production will be blended and processed through the Midwest facilities at Topeka, Kansas.

Sales offices of Midwest Alfalfa Blenders are located in Kansas City at the Ranchmart, 95th and Mission Road.

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IRRADIATED DRY YEAST
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—Jerry Parks
633 Board of Trade
KANSAS CITY, MISSOURI

H. G. Luther W. M. Reynolds

Pfizer Promotes Two On Research Staff

NEW YORK — The two scientists who direct the agricultural research program for Chas. Pfizer & Co., Inc., have been advanced to new positions, the company has announced.

Dr. Herbert G. Luther, director of Pfizer's agricultural research and development center near Terre Haute, Ind., has been named to the new post of scientific director of animal health and nutrition. In this position, Dr. Luther will be responsible for the further development of Pfizer's research activities in the agricultural field, both domestically and internationally. His headquarters will be in New York.

Warren M. Reynolds will hold the new position of manager of agricultural research and development at Terre Haute. He has been assistant to Dr. Luther since 1952, when the 700-acre research center was established in Indiana.

Dr. Luther joined Pfizer's technical service department in 1944 after serving as director of the biological laboratories of Sunshine Biscuit Co., where he was employed for 10 years. In 1952, when Dr. Luther was named to head Pfizer's agricultural research center, he was serving as assistant director of the company's technical service department.

A graduate of Cooper Union in 1940 with a chemical engineering degree, Dr. Luther later received a master's degree from New York University, and a doctorate from Brooklyn Polytechnic Institute.

Mr. Reynolds joined Pfizer in 1949 as a supervisor in the chick-testing laboratory, then located in Brooklyn. He received a B.S. degree in nutrition that year from the University of Connecticut.

Chicago Feed Club Plans Dinner-Dance

CHICAGO—The annual spring dinner-dance of the Chicago Feed Club will be held at the Evansville Golf Club, Skokie, Ill., the evening of May 9.

Since the affair just precedes the annual American Feed Manufacturers Assn. convention in Chicago, and it is expected that many out-of-towners will want to attend the dance, it is necessary that reservations be made in advance. Reservations, at $10 per person, may be made by sending checks to Chicago Feed Club, care of Spencer Kellogg & Sons, Inc., 3526 Bankers Bldg., Chicago 3, Ill.

The social hour will begin at 6:30 p.m., and dinner will be at 7:30. Music will be furnished by the Benny Sharp Orchestra.

Kansas Feed Survey

TOPEKA, KANSAS—A committee of 25 representatives of central and western Kansas cooperatives will meet at Larned, Kansas, May 5 to survey existing facilities of cooperative feed services in the area and the need for more. Attending will be Howard A. Cowden, president of the Consumers Cooperative Assn., Kansas City, Dr. Chase Wilson, director of the feed division, and Guy Williams, Kansas area supervisor.

Toledo Area Dehy Output Cut in Half

FINDLAY, OHIO — Production of dehydrated alfalfa in the heavy-producing three-state area around Toledo is expected to be only 50 to 60% of normal in the upcoming season.

This situation was brought out here April 23 at a meeting of nearly 100 dehydrators. It was the consensus of those present that nearly one half of the alfalfa in the large producing area has been killed. A heavy layer of ice coated fields for a prolonged period. Then, when it melted, because drainage tile was still frozen, water stood on the fields for a long time.

The extent of the kill was not fully appreciated until recently when it was observed that fields were not greening as they should. Now, many fields have been plowed up and reseeded, some to alfalfa and some to other crops. Newly-seeded alfalfa will not be available for dehydrating this year.

There were reports that quite a number of fields have not been reseeded with alfalfa because farmers

(Turn to DEHY OUTPUT, page 90)

Columbus Feed Club Plans Spring Party

COLUMBUS, OHIO—Wives of members of the Columbus Feed Club will be the club's special guests at the annual spring party May 8. Set for the Jai-Lai Cafe here, the party will include a social hour, dinner, door prizes, favors for the ladies and other gifts.

Also announced by the club were plans for a stag party at London Country Club June 25. Included on the program are golf, refreshments and cards.

Joe M. Petzold

JOINS MIDWEST ALFALFA—The appointment of Joe M. Petzold as assistant sales manager of Midwest Alfalfa Blenders, Inc., has been announced by Ford M. Patterson, sales manager. He will make his headquarters in Midwest's new offices at the Ranch Mart, 95th and Mission Road, Prairie Village 15, Kansas, a Kansas City suburb. Mr. Petzold has been in the food business for 20 years, first with General Foods and most recently with Stokely-Van Camp.

Warehouse Being Built

CINCINNATI — The Cooperative Mills, Inc., is expanding its facilities with the construction of a 60 x 100 ft. corrugated metal warehouse for truck loadings, at its plant in suburban Reading, Ohio.

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ACE BRAND ROLLED OATS
(Steam Processed)
if you want good, clean rolled oats at a competitive price
Send for samples and prices today
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KING BRAND ROLLED OATS (Steam processed)
WHOLE OAT GROATS
STEEL CUT OAT GROATS
BOLTED OAT FLOUR
GLENWOOD FEEDING OAT MEAL
FALCON BRAND PULVERIZED WHITE OATS
STANDARD BRAND PULVERIZED WHITE OATS
DAIRY BRAND COARSE GROUND OATS
CRESCENT BRAND PULVERIZED OATS
CORN OATS PELLETS (Corn-Oats)
MIXERS' PULVERIZED OATS
MIXERS' COARSE GROUND WHITE OATS
MIXERS' PELLETED OATS
APEX BRAND CRIMPED WHITE OATS
OAT FEED
STEAM ROLLED WHOLE BARLEY
GROUND BARLEY
PEARLED BARLEY FLAKES (Max. 2½% fiber) (steamed processed)
GLENWOOD PEARLED BARLEY
STAR CRACKED PEARLED BARLEY
STEEL CUT WHEAT
ACME GROUND DOMESTIC FLAX SCREENINGS
Millers TO THE FEED TRADE
FRUEN MILLING COMPANY
MINNEAPOLIS 5, MINNESOTA

MIDWEST ASSOCIATION HONORED—The Midwest Feed Manufacturers Assn. this week received the top Distinguished Achievement Award presented by the Chamber of Commerce of the U.S. The presentation was made at the Chamber's leadership recognition dinner at the Sheraton Park Hotel in Washington. The award, for achievement in the public interest, was given for the veterinary-nutrition program the Midwest association has been carrying on for the past three years. In the above photo, Ray Ammon (right), director of the Quaker Oats Co. feed department at St. Joseph, Mo., and immediate past president of the Midwest, is receiving the award from Frank Mueller (center), director of workshops for the U.S. Chamber. On the left is Lloyd Larson, executive vice president of the Midwest group.

Officers Elected By Grain Elevator Superintendents

PORTLAND, ORE. — Dunkin A. Walte, Louis Dreyfus Corp., Chicago, was elected president of the Grain Elevator & Processing Superintendents at the group's recent annual convention in Portland. Nearly 400 persons attended the meeting.

Other new officers are: George O. Spafford, Standard Milling Co., Kansas City, first vice president, and Clifford R. Lindeman, Saskatchewan Wheat Pool, Port Arthur, Ontario, second vice president.

Those reappointed to serve in their present capacities are: Harold R. Beaver, Stratton-Theis Grain Co., St. Joseph, Mo., sergeant-at-arms; George L. Kitchen, F. H. Peavey & Co., Minneapolis, safety chairman, and Dean M. Clark, Grain Magazine, Chicago, secretary-treasurer.

Directors are: Robert H. Jordan, Public Grain Elevator, New Orleans; Thomas L. Irmen, Anderson Elevator Co., Maumee, Ohio; Emil G. Anderson, Norris Grain Co., Omaha; James Crombie, Rice Grain Corp., Chicago; Wilfred Sutton, Tidewater Grain Co., Philadelphia; Herman Kroloff, Advance Seed & Grain Co., Phoenix; Carl E. Kinman, Farm Bureau Cooperative Assn., Columbus, Ohio; Tom L. Scott, Pearlstone Mill & Elevator Co., Dallas; Danton Nygaard, American Elevator & Grain Division (Russell-Miller Milling Co.), Buffalo; Tom Dean, Balfour, Guthrie & Co., Ltd., Portland; Al C. Collins, Minnesota Linseed Oil Co., Minneapolis, and Carle Baker, Security Elevator Co., Hutchinson, Kansas.

Seminars, panels and round tables comprised the major portion of the business of the convention. Various topics discussed were: Sanitation-fumigation, needed inventions, aeration, personnel relations, wheat, corn, barley and malt, grain sanitation, plant safety, grain sorghums, soybean, flax, oats and rye, structural maintenance, dust explosion, grain standards, marine and export, power and transmission, barge, car, and truck unloading and loading.

Grain handling facilities on the Willamette River from a specially equipped barge and ocean tugboat were inspected.

The 1960 convention site will be New Orleans, March 13-18, and in Hutchinson, Kansas, in 1961, instead of Buffalo as originally planned.

COMMENT

(Continued from page 4)

ly resolve their judgments in terms of the man at home on the farm.

These homey economists say that the Corn Belt farmer does not look too closely at parity relationships between the price of the end product and, for example, corn when the corn crop in his bins is in bountiful supply. He measures out his number of animals—his judgment of the number he plans to market—then the number of farm chickens his wife may feed from his cribs. There are some citizens in USDA who, while they may be economists, refuse to deny their close background to the soil.

Wheat Legislation

WASHINGTON—The current situation concerning legislative action on wheat is little less than a confused and discordant group of sausage makers trying to find a formula for their product. One group favors one rabbit to one horse—another wants not only the horse and rabbit but they would add a to the mix soybean meal or something else.

But even before these discordant legislative chefs can find a common recipe, they still lack the casing into which they may be able to contain this unholy sausage meat.

As of this week there seems to be little possibility that Congress will enact any new legislation for wheat.

The muddy ground on which the high price support addicts now stand may be found in a move in the Senate Agriculture committee this week. Sen. Milton Young (R., N.D.) introduced a measure which would postpone the deadline for the announcement of the level of price support and acreage allotment referendum from May 15 until June 1. The Young move is perhaps the best index of the uncertainty of Congress at this time.

In short the sausage makers can't find a recipe nor can they agree on a casing for the product if they can produce a product.

Vegetable Oil

WASHINGTON — Pending imminent vegetable oil procurement authorizations under Public Law 480—possibly within the next three weeks after conclusion of intergovernmental negotiations between this country and Argentina—may amount to as much as 100 million pounds of edible U.S. vegetable oils for that nation.

Issuance of PL 480 procurement authorizations may lag behind the three-week time-table but not for any lengthy period, it is said.

The Argentine, as a result of floods, has lost a considerable part of its local vegetable oil source, and the U.S. government has now assumed a policy of making available its stocks of edible oils to the Argentine under PL 480.

There is a general feeling in the trade that vegetable oil prices are heading upward. The condition in the Argentine merely emphasizes that. For example, the Argentine is normally an oil exporter for such nations as Peru and Chile and Uruguay. Even if the PL 480 program to the Argentine adds some availability of the reduced Argentine supply to fulfill those bilateral agreements, it is now sensed that probably the USDA will have to come through with additional oil export authorizations for those nations to meet the shortfall of the Argentine deliveries.

Cuban Blackstrap Yield Ahead of 1958 Crop

NEW ORLEANS—Blackstrap molasses production per short ton of sugar in Cuba is larger than last year's yield, the Molasses Market News, U.S. Department of Agriculture publication here reports.

The publication said production per short ton through March 15 averaged 45.2 gal., "substantially larger than last year's yield to the same date."

Blackstrap production from the 1959 crop amounted to 111.8 million gallons as of March 15, about the same volume of production as of the same date a year earlier.

Also reported was a contract by Puerto Rican producers to sell an estimated 22.9 million gallons of 1959 crop (not including sales previously reported). About 40% of this was contracted for sale on a price basis tied to that of 1959 Cuban blackstrap. About 35% was sold on a "profit sharing" plan with a minimum price of 10½¢ gal. The remaining 25% was contracted at fixed prices ranging from 8.8 to 12¢ gal., f.o.b. Puerto Rican port.

Bills Approved

MONTPELIER, VT.—A bill providing for regulation of the poultry business to prevent pullorum disease has been approved by the state Senate here. The upper chamber of the legislature also passed another measure to increase fees for permits to drive overweight trucks on Vermont highways. The present standard fee of $3.75 would be boosted to $4.50 for single trips and $20 for a blanket permit.

More Control Asked In Poultry Health

TRENTON, N.J. — Recommendations which ask, among other things, that more control be exercised over "unskilled and untrained vaccination groups for the protection of poultry farmers" were discussed at a recent meeting here in the office of Phillip Alampi, New Jersey secretary of agriculture.

Dr. G. Robert Muller, state veterinarian in the division of animal industry, said it has been suggested that this additional control be accomplished by "some licensing arrangement," with supervision of lay vaccination crews being "veterinary or otherwise." If recommendations were followed as they stand now, these vaccinating groups would be "allowed to conduct practices which would come under the heading of good husbandry practices or management."

Ideas have been called for in an effort to iron out some problems encountered in New Jersey with poultry treatment.

A complaint was made some time ago against a lay poultry serviceman by the New Jersey board of veterinary medical examiners. It was alleged by a poultry producer that chickens diagnosed and treated by the serviceman were harmed. The board of veterinary medical examiners then filed a charge of illegal practice of veterinary medicine.

No judgment has been made in the case, pending a study of the situation by representatives of the New Jersey Department of Agriculture, State Poultry Assn., New Jersey Feed Dealers Assn., Jersey Chick Assn., New Jersey Veterinary Medical Assn., Animal Health Institute, U.S. Department of Agriculture, state board of veterinary medical examiners and poultry disease advisory and vaccination committees.

Recommendations, including the points described by Dr. Muller, which have come out of discussions by the groups and committees concerned with the poultry treatment problem, will be taken under advisement by the state board of veterinary medical examiners at its next meeting in September. "In turn," Dr. Muller said, "these recommendations would remain basically unchanged, rejected or amended and resubmitted" to another committee made up of essentially the same groups.

NEW HATCHERY, FEED FIRM

AKRON, COLO.—Robert W., O. G. and Fred F. Vance have organized and incorporated the Vance Hatchery & Feeds, Inc., here.

Big Supplies Dominate Outlook

WASHINGTON—The big supplies of livestock and poultry products, with lower prices, dominate much of the situation and outlook for the feed industry's customers. The U.S. Department of Agriculture's latest report on the demand and price situation included these highlights:

Cattle: Fed cattle prices will hold relatively steady. Because slaughter of other classes will remain small, the larger supply of fed cattle may cause no more than an occasional price drop. Demand for replacement stock will remain strong and prices will continue strong.

Hogs: Hog prices will rise seasonally but will continue well below a year earlier. In recent weeks hog prices have been about $5 cwt. below a year earlier.

Lambs: The seasonal price rise should bring prices up to or above a year earlier.

Dairy Products: Prices for milk and butterfat in 1959 will approximate those of 1958 since supports continue at last year's levels, and supplies of milk products will be large enough to hold prices at support most of the time. Milk production probably will exceed 1958.

Eggs: Egg prices, down sharply because of large supplies, will recover some but will remain below 1958 in the months ahead. Hatchings of replacement chicks January-March were up 3% despite low egg prices. The low prices may cause cutbacks in chick production in the next few months.

Broilers: A high rate of production of broilers into July is indicated by the recent heavy volume of hatchings and egg settings. Prices may average about 15-17¢ lb. through June.

Turkeys: If total hatchings in the next few months hold at 1958 levels, per capita supplies the last half of '59 will be near the 1958 rate of consumption, through reduced diversion of stocks to storage. Then turkey prices at that season may remain little changed from 1958.

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Forrest Mynear (right), who raises famous Kentucky Thoroughbreds, depends on Satterwhite Farm Service for Purina Omolene.

Check-R-Mixing on the farm is one of the important services provided by Satterwhite Farm Service.

Frank Satterwhite helped design this creep feeder which has played an important part in introducing lamb creep feeding in the area.

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The Informal Poultry Nutrition Conference

A Summary and Comments on Papers Presented at the 1959 Conference

By Dr. J. R. Couch
Poultry Science Department
Texas Agricultural Experiment Station
College Station, Texas

The Informal Poultry Nutrition Conference was held April 12 in Convention Hall, Atlantic City, N.J. Attendance was estimated to be approximately 300. Eighteen papers were presented. Six of these were from commercial laboratories.

One paper was presented from each of the following laboratories: Nopco Chemical Co., Newark, N.J.; Distillation Products Industries, Rochester, N.Y.; Monsanto Chemical Co., St. Louis; Commercial Solvents Corp., Terre Haute, Ind.; Chas. Pfizer & Co., Terre Haute, Ind., and the American Cyanamid Co., Pearl River, N.Y. One paper was presented from the National Institutes of Health, Bethesda, Md. Eleven papers were presented from universities, state agricultural colleges, and state agricultural experiment stations. Two papers were presented from each of the following locations: Texas Agricultural Experiment Station, College Station and Gonzales; South Dakota State College, College Station, and Cornell University, Ithaca, N.Y. One paper was presented from each of the following: Rutgers University, New Brunswick, N.J.; University of California, Davis; University of Minnesota, St. Paul; University of Georgia, Athens, and the University of Maryland, College Park.

Dr. J. R. Couch

Papers which were thought to be of interest to the feed industry are reviewed below in some detail.

VITAMIN A, ANTIOXIDANTS AND PIGMENTATION:

Bio-assay of Vitamin A Activity—Two papers were presented which were concerned with bio-assay of vitamin A as such, preformed vitamin A and pro-vitamin A or carotene with dehydrated alfalfa meal and pure carotene as sources.

The first of these was presented by C. M. Ely of Nopco Chemical Co. Mr. Ely stated that the objective in his investigations was to compare the utilization of various carotene and preformed vitamin A sources using cross-bred broiler type chicks. It was pointed out during the initial discussions that it was hoped that data obtained would be applicable to present day field conditions.

Ely used the diet of Reed, Daugherty and Couch, published in 1955, as the basal diet in his studies. Day-old white Vantress cockerels were used as the experimental animals. These chicks had a normal initial reserve of liver vitamin A and were not depleted in any respect prior to assignment to the various dietary regimes. BHA and BHT were added to all experimental diets as antioxidants. Ely evaluated yellow corn, dehydrated alfalfa meal, a beta carotene concentrate absorbed on a soya flour carrier, a beta carotene concentrate prepared as a wax coated dry carrier, and various wax coated pre-formed vitamin A products, as well as fish liver oil, as sources of vitamin A or pro-vitamin A. All formulas were fortified to a level of 4800 I.U. vitamin A activity per pound of experimental diet. The two samples of dehydrated

(Turn to page 14)

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Industry Action Brings Reduction In Newcastle Vaccination 'Breaks'

VIPOL 717 (LaSota Strain) Vaccine Becomes Powerful Weapon in Curtailing Losses

Only a few weeks ago the poultry industry of the Southeast was face to face with a poultry health crisis more serious than any of the past decade. Suddenly, flocks thought safely protected from Newcastle came down with the disease that overwhelmed the flimsy barriers interposed by the B¹ Strain of Newcastle disease virus used by most vaccine manufacturers. Fears grew as mortality mounted.

Careful observation, however, revealed the peculiar nature of these outbreaks. As the evidence accumulated it became apparent that the B¹ Strain of Newcastle disease virus just didn't have the protective power to give flocks the necessary margin of safety. On the other hand, flocks immunized with VIPOL 717 (LaSota Strain) were an "island of safety" in the afflicted areas.

Proved by First Hand Observation

Even without scientific diagnostic reports, poultrymen saw for themselves that in VIPOL 717 they had a water Newcastle disease vaccine that kept flocks safe, while flocks vaccinated with the B¹ Strain came down with the disease.

As soon as Newcastle disease water vaccination "breaks" began to appear, Vineland Poultry Laboratories alerted its distributors to the exact nature of the situation. Almost as if they possessed the power of prophecy, Laboratories' officials were able to forecast that this onslaught of Newcastle disease could be stopped in only one way—vaccination with VIPOL 717.

VIPOL 717 Usage Skyrockets

First a trickle, then a flood of broiler operators who had suffered "breaks" with the B¹ Strain of Newcastle disease vaccine turned to VIPOL 717 for the protection they needed for their flocks. Sales doubled and redoubled as millions of doses of VIPOL 717 Water Newcastle Vaccine were shipped into the Southeast.

The result is now history. Newcastle losses are gone from trade publication headlines, and cases of vaccination "breaks" on the laboratory diagnostic tables were diminished. This was no "scare." It was a threat so real that broilermen close to it are still shaken by the experience.

Threat Is Still Present

The threat is still there. The next kindling of contagion may come in the Southwest, the Northeast, the Midwest—or perhaps again in the Southeast. There's one sure way to lick Newcastle—and keep is licked—with VIPOL 717.

THE THREAT OF NEWCASTLE IS STILL PRESENT!

In the past, the poultry industry has met each new disease threat with panic, then determined action, and finally—forgetfulness. It is the latter that really laid the groundwork for the recent "breaks" in flocks vaccinated against Newcastle disease with the B¹ Strain water vaccine.

For more than two years, Vineland Poultry Laboratories has challenged the poultry industry with this statement: "The VIPOL 717 Strain of Newcastle disease vaccine produces a higher titre and a more durable immunity than the B¹ Strain." Not a single contradiction has been received from any vaccine manufacturer, pathologist, breeder, hatcheryman or grower.

The challenge of that statement and the implicit performance of VIPOL 717 it contains were largely forgotten until the recent Newcastle holocaust throughout the Southeast. Even this lesson was not too expensive, if it prevents the industry from making the same mistake in the future.

Newcastle disease is still a threat. It takes vigilance and protection in depth—the protection of VIPOL 717 Water Newcastle Disease Vaccine—to keep flocks safe from the ravages of this disease.

All mass-applied Newcastle Disease vaccines on the market today are of the B¹ Strain except Vineland Poultry Laboratories' exclusive strain VIPOL 717. The B¹ Strain can immunize through the drinking water *only* if the treated water is consumed quickly. Birds not drinking for some time after the water has been treated with vaccine will consume water in which the virus has dissipated and lost its infecting power.

Produces High Blood Titre

The best indicator of generalized immunity, high blood titres produced within the birds, cannot be demonstrated in all the birds infected with the B¹ Strain.

Only one mild strain of Newcastle vaccine consistently produces the *high* blood titres and durable immunity sought in mass application.

That strain is the VIPOL 717 Strain, also known as the LaSota Strain. It is manufactured exclusively by Vineland Poultry Laboratories, Richmond, N.J.

Retains Power to Immunize

VIPOL 717 retains its power to immunize for periods as long as 24 hours and more after it has been added to poultry drinking water. Because of the original high titre of the virus in the vaccine itself, it can stand dilutions in the drinking water well beyond recommended levels.

This strain has an unlimited infecting potential that continues through the vaccination reaction period and insures the immunity of a maximum number of susceptible birds. Revaccinations on young chicks with VIPOL 717 are reduced to the minimum and are necessary *only* if the birds are carrying parental immunity at the time the vaccine is first given.

Water Vaccine Effective

On the other hand, revaccinations with the B¹ Strain are necessary because this strain of virus lacks infecting potential among those susceptible birds that do not receive a dose of vaccine at the time of vaccination.

Vaccination through the drinking water is the most efficient, economical and effective mass method of immunizing poultry against Newcastle Disease—providing the VIPOL 717 (LaSota Strain) is used.

Remember that the LaSota Strain is used by Vineland Poultry Laboratories exclusively as the basis for its VIPOL 717 Vaccines. See your nearest dealer or Vineland state distributor, or get in touch with Vineland Poultry Laboratories, Vineland, N.J., or 4068 Broadway Place, Los Angeles 37, Calif., for either the product desired or more detailed information.

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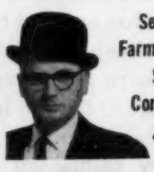

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1. Whitehair, C. K.: Medicated Swine Feeds. North Am. Vet. (Am. J. of Vet. Sci.) 39 (No. 2) (Feb. 1958): 32.
2. McGinnis, J. et al.: Use-history of Antibiotics as Related to Their Efficacy in Promoting Growth of Turkeys. Poultry Science, in press.
3. Bird, H. R.: Coming Events in Poultry Nutrition. Hatchery & Feed, July, 1958.

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Feed for Thought

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The folks who've organized this combined convention and feed show want to make these the very best functions you've ever attended. They've set up an excellent convention program and arranged for speakers of universal interest. The feed show exhibits will enable you to view the latest in equipment and feed ingredients. You'll have an opportunity to rub shoulders with fellow members of the feed fraternity and to exchange ideas and viewpoints with them. It will be impossible for you to return to your mill after the convention without picking up some new ideas on equipment, ingredients or methods of manufacturing which will enable you to improve your own operations.

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Our personnel will be happy to explain the advantages of our Peter Hand FW-Premixes and Peter Hand Proven Premixes for you. They will tell you how Peter Hand can help you to produce improved and more economical feeds.

Visit our suite at the Conrad Hilton Hotel or booth No. 102 at the National Feed Show during the convention. We'll be happy to see you.

J. R. LINSNER
Director of Technical Services
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Look for "Feed for Thought" every month. This popular column appears regularly in this same place (page 14) in the first Feedstuffs issue of each month.

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alfalfa meal each produced approximately the same vitamin A storage in all experiments. Furthermore, liver storage data obtained with dehydrated alfalfa meal or a corn and dehydrated alfalfa meal combination were approximately the same. When the beta-carotene concentrate was prepared in the form of a wax coated dry carrier, there was a slight but non-significant improvement in liver storage.

From the results of Ely's investigations it was quite apparent that carotene derived from dehydrated alfalfa meal or from yellow corn was poorly utilized as a source of vitamin A in the diet of chicks at 31 days of age. When pro-vitamin A from either of the sources mentioned was the primary source of vitamin A activity in the formula, even the combination of alfalfa meal and corn barely maintained an initial reserve of vitamin A activity which was present in the liver at the time the chicks were placed on experiment. Carotene from a purified beta-carotene concentrate supplied in two forms either as the concentrate without modification, or with a wax coated carrier, was utilized less efficiently than carotene from alfalfa and yellow corn. These data are not new, since it was reported over 20 years ago by Hart and co-workers at the Univeristy of California that carotene or pro-vitamin A was much less efficiently utilized than pre-formed vitamin A. From the practical standpoint the point in question here is that in order to obtain a maximum amount of liver storage for the maintenance of growth, good feed conversion, health, and to obtain a maximum profit from a poultry operation, it is apparently necessary to supplement the formula with pre-formed vitamin A. This will be discussed further below.

The liver storage of vitamin A with fish oil as the source, or with synthetic vitamin A palmitate in oil as the source, was substantially higher (3 to 4 times) than that of an equivalent level supplied by the carotene sources discussed above. It should be emphasized at this point that neither of the products, vitamin A from fish oil or synthetic vitamin A palmitate in oil, compared favorably in any respect with results obtained by the degree of utilization when the vitamin A was supplied in the stabilized form.

The vitamin A from the stabilized vitamin A product was approximately four times as potent as vitamin A from palmitate or fish oil in promoting liver storage in the experiments conducted. This illustrates again the importance of having a stabilized vitamin A or a stabilized pre-formed vitamin A as a normal feed additive in poultry feed formulas. The results obtained in Ely's experiments clearly show the necessity for including a pre-formed vitamin A in feed formulas for poultry and for including a stabilized pre-formed vitamin A which is readily utilized by the chick.

It has been apparent to the writer for a number of years that it is important to maintain a satisfactory reserve of vitamin A activity in the liver in order to have the bird in a condition to meet field stresses and such activity can be maintained best with a pre-formed stabilized vitamin A.

The addition of fat at a level of 4% in Ely's experiments increased vitamin A storage in the liver from 2.1 to 3.2% utilization.

The next paper in this series was presented by Dr. S. R. Ames, Distillation Products Industries. This was a continuation of some of the work presented before the Informal Poultry Nutrition Conference in 1958 in Philadelphia. In the present report, Dr. Ames was concerned with the use of diet supplementation bio-assays to evaluate the potency and stability of vitamin A in poultry feeds. In the opinion of the writer, this report was an extremely important one from the standpoint that the procedure tended to eliminate or separate vitamin A stability and availability in bio-assays. Dr. Ames stabilized the USP reference standard vitamin A so that this product could be used in evaluating stabilized vitamin A products. Dr. Ames used a depletion period and then a supplementation period of approximately one week, at the end of which time the birds were sacrificed and the liver vitamin A determinations run. The method is rapid, precise, and serves as a means of comparing stabilized vitamin A products. It was found that fish liver oil vitamin A was utilized less efficiently with regard to liver storage than was a stabilized vitamin A or the stabilized vitamin A USP standard when the latter was stabilized according to a standard procedure. From the results obtained, Dr. Ames found that the alltrans vitamin A palmitate would produce approximately the same or an almost identical vitamin A storage as was obtained with the stabilized USP vitamin A oil standard. It should be pointed out that this method is applicable only to stabilized vitamin A if the stabilized vitamin A USP reference standard is also stabilized.

From the results of this presentation, it is apparent that a good method has been introduced for the assay of standard vitamin A products which have been stabilized by various patented procedures. The work also shows that stabilized vitamin A, either from the USP reference standard or from commercial products, was lost at a more rapid rate when the feed was placed in pellet form than when made into mash form. Vitamin A from fish oil in the report was lost at quite a rapid rate. In mash form, there was an average loss of 7.5% of the vitamin A per week, and in pellet form a loss of only 6.5% was experienced. This is important to the feed industry to know that there is quite a rapid loss of vitamin A when the pre-formed vitamin is supplied in the feed in the form of fish oil as contrasted to a good stabilized vitamin A.

Texas Study: The next report was presented by the writer and covered work carried out by Woodie P. Williams, Jr., from the poultry science department, Texas Agricultural Experiment Station. This work has been reviewed earlier when the report was given before the poultry section of the Association of Southern Agricultural Workers, Memphis. (Feedstuffs, Feb. 21, 1959, pp. 42-44, 65-66).

A few points here should be added to the two reports given above to the effect that the antioxidants (BHT, Santoquin and DPPD) failed to have any consistent measurable effect on either the deposition of carotenoid pigment in the skin and shanks of the broilers or the deposition of vitamin A in the livers of the broilers. Levels of BHT fed ranged as high as 1 lb. per ton. This level did not produce any toxic effect. It was noted during the course of these investigations that the use of 2½, 5 and 10% added fat in the formula had no appreciable, measurable effect on their carotenoid deposition in the skin and shanks or deposition of vitamin A in the liver. When the fat was increased to 20%, there was a definite measurable detrimental effect on carotenoid deposition and on storage of vitamin A in the liver. One particular sample of fish oil obtained by a cold process from fish livers was extremely detrimental on carotenoid

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deposition and vitamin A storage. The amount of carotenoid deposited in the shanks of broilers fed this fish oil at a level of 4.5% was not measurable and the shanks appeared to be bleached almost as much as if no pigmentation source had been included in the formula.

It might be further pointed out that the use of different fats including soybean oil, poultry oil, cottonseed oil and stabilized animal fat at the 20% level brought out some points which were in agreement with the report by Dr. L. C. Norris given before the Distillers Feed Research Council in Cincinnati March 25. The unsaturated fats in general tended to promote growth to a greater extent than fats containing more of the saturated fatty acids such as are found in animal fat. Dr. Norris pointed out that fats from vegetable sources tended to increase growth beyond the point which can be explained on the basis of the energy content of such fats and suggested possibly that these fats from vegetable sources might contain an unidentified factor, ether extractable. A growth increase of ¼ lb. or more was obtained in broilers at 8 weeks by using some of the unsaturated oils. Poultry oil was comparable to the vegetable oils in promoting growth, and poultry oil did increase the pigmentation and certainly produced a decided increase in vitamin A storage when added to the diet of the chick at the 20% level. It is possible that poultry oil might contain a factor which enhances vitamin A storage and carotenoid deposition. The poultry oil did not contain any quantity of measurable vitamin A. In this particular case, the attention of the reader is directed to the earlier report of Harms and co-workers from the Texas station in which it was shown that condensed fish solubles contained a factor which would enhance the storage of vitamin A in the livers of chicks.

It might be pointed out from the work of Williams that the diet was supplemented with a pre-formed stabilized vitamin A and that the chicks also had an opportunity to convert pro-vitamin A or carotene into vitamin A and store same in the liver when yellow corn, dehydrated alfalfa meal or corn gluten meal was used to supply carotenoid pigments for deposition in the skin and shanks. In all instances, comparisons were made with standard carotenoid levels and products such as antioxidants or fat were each fed on a constant carotenoid basis. One of the questions raised at the end of the paper was that of maintaining a constant carotenoid source, particularly in the case of 20% added fat. The added fat was substituted for milo and the adjustment was made between milo, fat and soybean oil meal on an isocaloric-isonitrogenous basis. In this case, it certainly would be the fact that all diets would contain the same level of carotenoid pigments. It is true that the birds fed 20% fat would have consumed a slightly lower level of carotenoid pigment. It was estimated from calculations that this would have led to a decrease of approximately 10% in carotenoid consumption below that of the basal group due to ingredients in feed conversion but the improvement in feed conversion experienced from 10 to 20% was not of consequence. Such a decrease in carotenoid consumption does not account for the fact that there is a reduction of almost 50% in the pigmentation score when 20% fat is added to the diet.

An examination of Williams' data reveals that there was an average decrease in pigmentation of 30% when 20% added fat was substituted in the formula and the calorie/protein ratio was maintained constant. The 20% substituted fat improved feed conversion to the extent of 12 to 18%. This means that the carotenoid pigment intake was decreased 12 to 18% whereas the carotenoid deposition in the shanks was decreased 30%. Therefore, the substitution of 20% fat in the formula does not account for the total difference existing in the carotenoid deposition in the shanks of the birds.

Antioxidant: Dr. R. S. Gordon from the research department, Monsanto Chemical Co., presented data concerning the re-evaluation of fat soluble vitamin requirements of poultry in the presence of antioxidants. It was pointed out during this presentation that it is difficult to determine the requirement for vitamin A in the absence of an antioxidant because of the continuous destruction of the vitamin in the feed, in the gastro-intestinal tract and the tissues. The method employed in obtaining the data was that of measuring growth and survival after an initial depletion period followed by a period of supplementation and finally by a second depletion period. This is somewhat similar to a method which has been used in the laboratory of the writer and was published in Poultry Science some time ago. The vitamin A and E requirements for the normal growth of broilers appeared to be markedly reduced under the condition of the experiments carried out by Gordon and co-workers, and in the presence of the antioxidant Santoquin.

It was concluded by Dr. Gordon that the mode of action for Santoquin appeared to be a sparing one in preventing the loss of vitamin A from oxidative destruction.

It is extremely important that manufactured feeds contain an antioxidant. The work presented by the above further confirms the necessity of having a good antioxidant in the feed. It should be pointed out that these studies were carried out in chick batteries and probably under the environment of a low disease level. The writer would certainly caution against lowering the fat solu-

(Turn to CONFERENCE, page 78)

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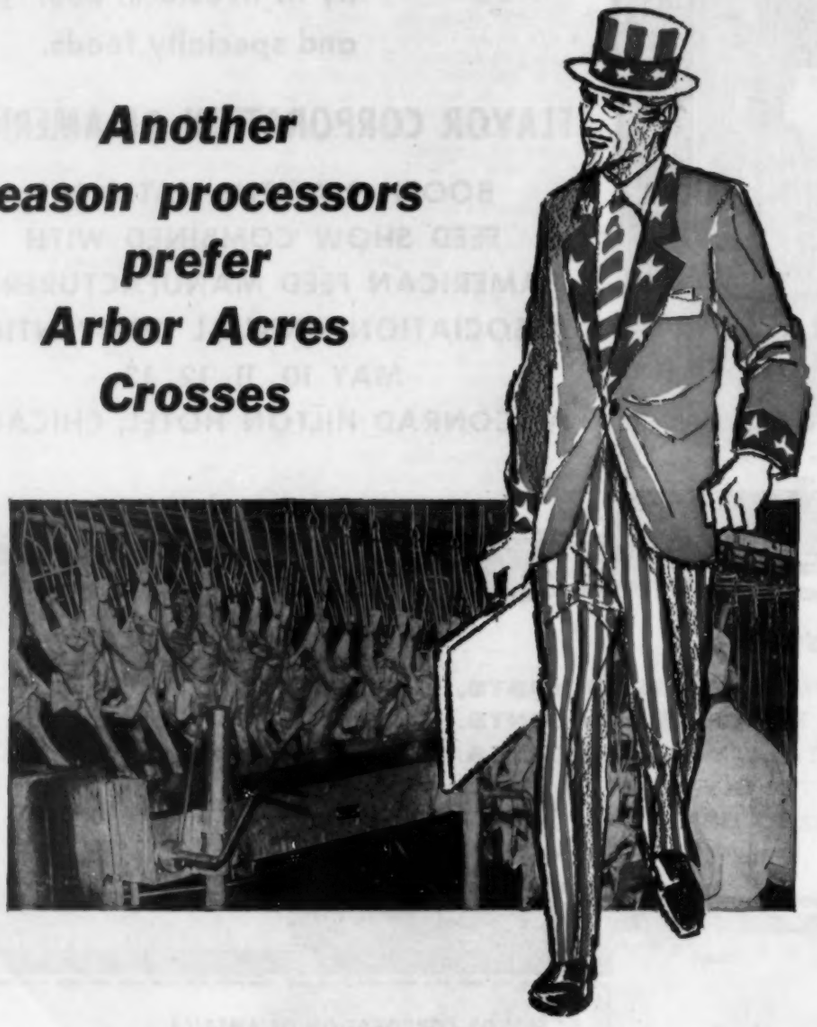

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In FARM ANIMALS

LEPTOSPIROSIS

Leptospiral infections were once considered only slightly important to the livestock industry; responsible for but a few cases of human illness. Now, however, leptospirosis is considered a disease which may constitute a major public health problem (1).

This disease causes an annual loss of more than $112 millions—third most costly livestock disease in the U.S. (2). In cattle these losses are a direct cause of deaths, abortions and setbacks in weight gains and milk production in affected herds. Leptospirosis has also been reported in sheep ranging from mild digestive disturbances to abortion storms, periodic ophthalmia, fulminating infections and death. There is also the threat of human infection. Carrier animals excreting viable leptospira organisms in urine serve as a reservoir of spread to humans. Slaughterhouse workers, veterinarians, meat inspectors and others handling or coming in contact with internal organs such as liver, kidneys or blood containing leptospira may acquire the infection.

INFECTION INCIDENCE

Leptospirosis is world wide in distribution. The disease has been described in all major livestock producing areas—parts of North and South America, Africa, Asia and New Zealand. A few locations — Anglo-Egyptian Sudan, Egypt and parts of South Africa—are completely free from leptospirosis (6).

The first detailed report of bovine leptospirosis diagnosis in this country (7) was made by staining tissue sections of diseased cattle after autopsy and observing leptospira. Leptospira was successfully isolated and identified as the causative agent in a natural outbreak of the disease (8) in groups of Holstein, Guernsey and Brown Swiss dairy cows. It has also been described as a disease of hogs (9 & 10). Numerous serological surveys have since been conducted to attempt to establish the incidence of infection, with rather striking results. For example, in 1952, it was reported (10) that 3.5 per cent of 352 cattle tested had significant titers against **L. pomona,** while a recent survey revealed (11) infection in 26.7 per cent of 725 herds. Of the samples tested, 4.12 to 19.8 per cent were positive against **L. pomona** (12). In one report on bovine leptospirosis, it was stated (13) that in Ohio and probably in other states as well, practicing veterinarians are reporting increasing numbers of abortions in cattle occurring in serologically positive herds.

Swine leptospirosis surveys in U.S. and other countries show: on 96 routine (14) swine samples in Indiana 20 per cent were found positive to **L. pomona;** of 285 samples (15) from Denver and Chicago slaughterhouses 22 per cent were found positive; of 280 samples from Columbus, Ohio, 3.5 per cent were found positive to **L. ictero** agglutinins and 1.7 per cent positive to **L. pomona;** of 1990 samples in Illinois 14.7 per cent were found positive to **L. pomona;** and in an Australian survey (16), 20.7 per cent of the samples tested were found positive. Surveys over the world show incidence as high as 59 per cent (14).

To further complicate the epidemiological picture, a wildlife reservoir of infection exists in many parts of the world. For example, in addition to the known rodent carriers, it has been found that (16) sera of wild pigs in Queensland (Australia) had titers of at least 1:200 and that positive sera were found (17) in wildlife samples obtained from deer, rabbits, coons, opossum and foxes. Deer (18) tested for leptospira infection show a 16 per cent infection in widely scattered areas throughout the state of Minnesota.

ETIOLOGY

Up to 40 leptospiral species with similar morphologic and cultural features but with different antigenic structures have been identified in human and animal cases of this disease (19). The serotypes most commonly encountered are: **Leptospira icterohemorrhagiae,** carried by rats, dogs and occasionally cattle and swine; **L. canicola,** primarily an infectious agent for dogs but also seen in swine and cattle; and **L. pomona,** the organism most frequently incriminated as the cause of bovine, equine and porcine leptospirosis. Other species which may be encountered in domestic animals include: **L. sejroe, L. hebdomadis, L. autumnalis, L. mitis** and **L. grippotyphosa.**

All leptospira infections have certain common characteristics. Infection is almost always caused by organism-infected droplets of urine coming in contact with cut or abraded skin or the mucous membranes of the eyes, nose and mouth. There is no spread by inhalation and seldom by ingestion (20). In addition to the urine-carried organisms, fetal membranes and dead fetuses passed by infected dams also may carry leptospirosis. Frequently, an outbreak in a herd of cattle may occur as a result of exposure of cattle to infected pigs or introduction of cattle that have been infected previously and are carriers at the time. Apparently, transfer of infection must be fairly direct and occur within a brief period since **L. pomona** soon perishes outside an animal host (21).

The survival rate of other leptospiral organisms outside the host's body is also relatively short. The hypothesis that pathogenic leptospira can exist permanently in soil and water was abandoned by most investigators (20) when continuous contamination of the external environment by animal carriers was demonstrated. It has been suggested, however, (16) that Leptospira will survive for long periods in wet areas, such as mud and pools of stagnant alkaline water. In support of the observation on the short longevity of leptospira, it has been reported the free leptospiral organisms do not survive long in nature outside the body of an animal host, because they are very sensitive to cold and heat, to desiccation and to the action of other micro-organisms.

SYMPTOMS OF LEPTOSPIRAL INFECTIONS

Leptospiral infections in domestic animals vary in severity from a mild, self-limiting condition to an acute disease which may result in abortion, icterus, atypical mastitis, hemoglobinuria and death. While some leptospirosis symptoms are common to all species of domestic animals, basic differences in host reactions do exist. All animals go through an acute febrile phase five to seven days after exposure. Rise in temperature, with or without other signs of illness, may be so mild that the disease often goes undetected in absence of serological tests. The febrile phase of the infection is marked by a leptospiremia, and recovery of the organism from the blood is possible at this time. Without complicating factors, the febrile phase passes in a relatively short time. Leptospiral antibodies may be noted in three to seven days. Concurrent with the appearance of circulating antibodies, organisms tend to disappear from the blood stream. In a recent study (22) some cases were observed where leptospiremia was present after development of serum antibody. These organisms eventually find their way to the renal pelvis (19) and the lower portions of the kidney where they tend to propagate. These organisms are eventually excreted in the urine. The renal phase of infection, with the animal remaining asymptomatic, may last from three months in cattle to as long as 122 days (22) in carrier swine.

THE DISEASE IN CATTLE

Bovine leptospirosis, primarily caused by **L. pomona**, has been referred to as the "warm weather disease" in cattle because of the increased infection incidence during spring, summer and early fall months. In addition to the characteristic fever of 104° to 107° F. and the accompanying inappetence and anorexia, the most significant signs of disease are abortions, usually late in pregnancy; a marked, atypical, non-inflammatory mastitis; and a hemoglobinuria characterized by the passing of profuse amounts of dark, blood-tinged urine.

Atypical mastitis, which may be noted in approximately one-third of the cases, is marked by a sudden and almost complete cessation of milk flow. The small amount of milk that is produced is thick, yellowish, and may resemble colostrum. The udder becomes soft and limp resembling that of a dry cow (21). It may at times be tinged with blood or contain free blood clots. The udder usually remains soft and limp for the duration of this atypical mastitis phase of infection. At no time is there any evidence of inflammation, an important feature which serves to differentiate this condition from acute and septic mastitis. Milk production, in most cases, returns to normal in ten days to two weeks.

In those animals suffering severe infection a massive hemolysis may take place resulting in more hemoglobin liberation than the liver can handle. Subsequently, passing of hemoglobin in the milk and urine results. It has been reported (23) that some cattle pass so many gallons of coffee-colored urine that mucous membranes become pale, even white. It has further been pointed out that on autopsy there is a marked lack of blood in the carcass, and that there is considerably reduced amounts of hemoglobin and if there is any urine in the bladder, it is usually coffee colored.

Abortions due to leptospiral infections usually occur during the last third of pregnancy. Although the exact mechanism which causes the abortion is still unknown, it is hypothesized (13) that in infected cows, even though the leptospira may not pass the placental barrier, the soluble toxic products from the dead leptospira pass into the fetus. The erythrocytes of the fetus are destroyed in such quantity that anoxia causes death, followed by expulsion of the fetus (13). Occasionally, an infected cow will carry to term but will deliver a weak or dead calf. Afterbirth and umbilical cord of aborted fetuses may appear somewhat enlarged and edematous. There is usually no apparent pathology evident in the uterus of aborting cows. The mortality rate for infected mature cows is approximately 5 per cent, but calves may suffer as high as a 25 to 33⅓ per cent loss.

THE DISEASE IN SWINE

Porcine leptospirosis, except for its effects on pregnant sows, is a relatively mild disease. Infected hogs usually remain free of apparent symptoms and appear to be alert and to have normal appetites. However, abortions and death of newborn pigs and the fact that infected swine serve as a reservoir of infection for cattle, horses and man make the disease in hogs an important veterinary problem.

Infection during mid-pregnancy (16) is likely to cause abortion and poor survival of piglets but in very late pregnancy causes little or no ill effects. One sow infected when 100 days pregnant delivered a healthy litter 13 days later. This animal, however, began to shed leptospiral organisms in her urine on farrowing day. She may even conceive on the first service after infection and produce a normal litter. Other symptoms which may be noted during outbreaks of swine leptospirosis include a slight transient rise in temperature, and evidence of anorexia for 5 to 6 days.

THE DISEASE IN HORSES

Perhaps the most significant feature of leptospirosis in horses is the effect on the eye. One author believes (24) that periodic ophthalmia or moon blindness is caused by leptospiral organisms. In support of this he cites work where a number of serum samples gathered from both normal and infected horses showed that animals suffering from periodic ophthalmia almost invariably had circulating antibodies against **L. pomona**. This author refers to work of Heusser who has reproduced moon blindness by inoculating a normal horse with leptospira, and reports successful isolation of **L. pomona** from the aqueous humor of the eye of one horse one year after the experimental inoculation. It is also interesting to note that spirochaetal diseases in humans frequently result in involvement of the eye (25). Other ocular symptoms noted in the horse include involvement of the lens, retina and vitreous body, with eventual impairment of vision and blindness. Failure of the iris to dilate properly and vascularization of cornea may also be observed in this condition.

While periodic ophthalmia appears to be the most striking sequela of equine leptospirosis, naturally occurring cases of this disease have been described (5 & 26) with symptoms of septicemia, inappetence, high temperatures, depression, anorexia and icterus.

DIAGNOSIS

Precise diagnosis of leptospirosis depends on the use of one or more of the following laboratory techniques:

1. Recovery of organisms from blood before appearance of circulating antibodies, and from kidney and urine during leptospiruric phase of infection. One worker (16) suggests examining pleural and peritoneal fluid from fetuses and dead newborn piglets. Identification of organisms is made by darkfield microscopic examination. Approximately 10 cc. of blood should be centrifuged at 3,000 r.p.m. for 45 minutes. Care should be taken not to mistake pseudospirochaetes and filaments streaming from other cells.

2. Intraperitoneal inoculation of milk, urine, blood or kidney tissues from suspected animals into hamsters and guinea pigs. The material is best inoculated as soon after collection as possible,

In the laboratories at Terre Haute, Dr. William G. Huber, research veterinarian, directs a Pfizer Summer Fellow, John Hottell, veterinary student from Michigan State University, in further laboratory study of blood from leptospirosis infected animals. Their work is representative of Pfizer's continuing search for new and better medications and treatments for the prevention and cure of livestock diseases.

THE DISEASE IN MAN AND ANIMALS COMPARED

Leptospiral Serotype	Animal Carriers	Name of disease in man
L. icterohemorrhagiae	Rats, dogs, occasionally swine & cattle	Weil's disease; infectious jaundice
L. hebdomadis	Field mice; possible cattle infection	Japanese, seven-day fever
L. autumnalis	Field mice; possible cattle infection	Fort Bragg fever, autumnal fever
L. canicola	Dogs; occasional infection in pigs and cattle	Canicola fever
L. pomona	Swine; cattle, also horses, sheep and goats	Bovine leptospirosis; swineherd's fever, dairy fever
L. bataviae	Field mice, rats	Rice field fever
L. sejroe	Mice; possible cattle infection	Sejroe fever; field fever
L. grippotyphosa	Field mice; hamsters; cattle and horse infection rare	Mud fever; swamp fever; water fever
L. ballum	Mice; rats; opossum	
L. australis	Rats	Canefield's fever
L. mitis	Swine	Swineherd's fever

COMPARISON IN CATTLE, SWINE AND HORSES

Symptom	Cattle	Swine	Horses
Temperature	Elevated	Elevated	Elevated
Duration of fever	24 to 48 hours	24 to 36 hours	48 to 72 hours
Duration of leptospiremia	3 to 10 days	3 to 12 days	3 to 10 days
Duration of leptospiruria	About 3 months	As long as 1 year	3 months (24)
Abortion	2 to 3 weeks after clinical symptoms; usually during last third of pregnancy	Occurs mostly during mid-pregnancy; birth of weak or dead young pigs	Rarely observed
Mortality	Up to 5% in cows; as high as 33% in young calves	Almost all	Almost all
Hemoglobinuria	Large quantities of coffee-colored urine passed	Rarely	None
Other symptoms	Atypical, non-inflammatory mastitis; production of small quantity of thick, yellow, occasionally pink-tinged milk	Mild conjunctivitis; nervous and digestive disturbances	Recurrent iridocyclitis
Postmorten findings	Signs of anemia and icterus; liver and kidney damage; petechial hemorrhage on pericardium and liver; dark-colored urine in bladder	Signs of icterus and anemia; chronic interstitial nephritis	Icterus and anemia

inasmuch as the leptospira have a relatively short life outside the host body. The test animals should show a febrile response if the samples are positive —4 to 7 days post inoculation. The organisms may be demonstrated in the blood at that time. One consideration a veterinarian might make is to request additional testing for leptospirosis on the Bang's sample he sends to diagnostic laboratories whenever abortions or sterility problems exist in the animals.

Some of the laboratories listed may perform such services for the veterinarian. It is suggested that inquiry be made to ascertain if the service is available on the diagnostic basis. A partial list of such laboratories includes: Army Medical Center, Washington, D. C.; Communicable Disease Center, Chamblee, Georgia; College of Veterinary Medicine, Davis, California; College of Veterinary Medicine, Pullman, Washington; College of Medicine, Department of Bacteriology, Vermillion, South Dakota; College of Veterinary Medicine, Urbana, Illinois; College of Veterinary Medicine, Ames, Iowa; State Disease Control Laboratory, Madison, Wisconsin; New York State Veterinary College, Ithaca, New York; Department of Animal Diseases, University of Connecticut, Storrs, Connecticut; Coastal Plain Diagnostic Center, Tiffin, Georgia; State Diagnostic Center, Reynoldsberg, Ohio; College of Veterinary Medicine, Ohio State University, Columbus, Ohio; Department of Veterinary Science, Ohio Agricultural Experiment Station, Wooster, Ohio; Department of Veterinary Science, Purdue University, West Lafayette, Indiana; College of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pennsylvania; Penn State University, University Park, Pennsylvania; School of Medicine, University of Texas, Galveston, Texas; Department of Veterinary Science, Polytechnic Institute, Blacksburg, Virginia; Michigan State University, Department of Microbiology and Public Health, East Lansing, Michigan; and State Diagnostic Laboratory, Alabama Polytechnic Institute, Auburn, Alabama.

3. Serological examination of serum using either agglutination lysis test with viable organisms as antigens, complement fixation test or agglutination test. Blood samples should be drawn both during the acute phase of infection and two to three weeks later. If there is a significant rise in titer between the first and second examinations, a diagnosis of leptospirosis may be safely made. A positive reaction should not be considered (19) at titers below 1:300 in the agglutination lysis test to eliminate the non-specific agglutination observed in lower dilutions.

4. Demonstration of leptospira using Giemas's stain or silver impregnation techniques in preparation of kidney and liver tissue.

The diagnosis of leptospiral infections based on serological examination appears to be a valuable diagnostic tool as well as a useful means of conducting epidemiological studies of the disease. However, some doubt has been shed (19) on the accuracy of low dilution titers in both cattle and horses. Serological techniques may be a reliable means of establishing the presence of the disease in dogs and a fairly accurate means in swine. Less enthusiasm has been expressed that the use of this test will detect infection in horses and cattle because (19) non-specific agglutination occurs in cattle and in the case of the agglutination lysis test titers up to 1:600 cannot be considered specific for bovine leptospirosis. In horse studies, clinically healthy animals react at high dilutions to horse serum agglutinins of a non-specific nature, and it has been suggested that repeated serological examinations are necessary in order to reach a positive diagnosis of the disease in horses.

The need for a field test that may be easily applied in practice is evident. A standard **Leptospira pomona** antigen (27) suitable for rapid plate testing is now licensed and commercially available. If this test proves accurate it should aid materially in helping the practicing veterinarians to more easily cope with this serious livestock ailment.

PATHOLOGY

Primary pathologic findings in animals that succumb to leptospirosis are usually limited to the kidneys and liver. Gross lesions in pigs (15) are typical of chronic, progressive interstitial nephritis. Few lesions have been observed during the period of increased temperature, with several pigs showing a few small hemorrhages in lungs and a few with mild degenerative changes in liver and kidneys. The kidney capsule in some cases is difficult to remove and the surface of kidneys is roughened with many fine depressions. As infection progresses, kidneys show evidence of scarring. Such kidneys appear shrunken, and small bands of fibrous tissue can be seen both at the surface and extending into the parenchyma. Lesions in aborted fetuses and dead piglets with focal necrosis of the liver with irregular foci, 1 to 4 mm. in diameter, have been described (16). The lesions are associated with a yellow pleural and/or peritoneal fluid.

Other workers describe an autopsy (13) on a yearling bull which died on the seventh day following inoculation with a virulent culture of **L. pomona.** They noted no outstanding gross lesions other than slight icterus with petechiae in the subcutaneous tissues and kidneys. The bladder contained about one liter of reddish urine. The blood appeared watery. **Leptospira pomona** was recovered from kidneys but not from liver by hamster inoculation.

CONTROL AND PREVENTION

Control of leptospiral infection calls for effective elimination of organisms in the blood stream and, during the leptospiruric phase of the disease, from kidneys and urine. While penicillin has been reported as a satisfactory therapeutic agent during the acute or febrile stage of infection, it has little or no value once organisms have lodged in kidney tubules. Dihydrostreptomycin given at the rate of 5 mg. per lb. of body weight for three to five days, or a combination of penicillin and dihydrostreptomycin, will effectively control the active infection and will usually prevent or eliminate the carrier state.

The following daily dosage schedule is recommended for use, by deep intramuscular injection of a combination of penicillin and dihydrostreptomycin:

to 100 lb.....2 cc.	300 to 700 lb...6 to 10 cc.
100 to 300 lb....3 to 6 cc.	Over 700 lb....6 to 10 cc.

Broad-spectrum antibiotics such as tetracycline or oxytetracycline have proven highly effective in treating leptospirosis. Daily dosage schedule, by intravenous or deep intramuscular injection, is 2 mg. per pound of body weight repeated at 24-hour intervals.

Supportive treatment for cattle is indicated, especially if there is evidence of massive destruction of erythrocytes (hemoglobinuria, pink-colored milk, and pale mucous membranes). Daily transfusions consisting of 2 to 4 quarts of citrated whole blood from recovered or normal animals are recommended as long as there is continuing evidence of hemolysis. A high fluid intake is also indicated in the event of kidney damage.

In addition to the use of antibiotics and supportive treatment, vaccination of herds to control active outbreaks of infection has been recommended (17). Periodic ophthalmia, believed to be a common sequela of infection in the horse, may be treated by using streptomycin or the broad-spectrum antibiotics systemically to destroy the leptospiral organisms and by using a suitable corticosteroid systemically or topically to relieve inflammation. Atropine instilled in the conjunctival sac for short periods of time will prevent adhesions in the iris while the healing process is taking place.

A major problem in control of leptospirosis still exists in handling of swine herds because of a high percentage of chronic carriers. Swine are prolific shedders of leptospira, and are capable of carrying the infection for as long as 122 days (22). They constitute an ever-present danger to susceptible cattle herds, horses and man. The long duration of leptospiruria in some pigs and the survival of leptospira under suitable conditions (16) would permit the infection to persist in a piggery indefinitely. Only partial success is reported (15) in transmitting infection from calves to other calves and from calves to swine. It is suggested that a relatively small number of leptospira present in the calves' urine may explain this finding. But in view of the tremendous number of organisms passed by swine where swine and cattle cohabit the same premises, it seems logical, in outbreaks of bovine leptospirosis, to incriminate swine whenever possible as the source of infection until proven otherwise.

Although dihydrostreptomycin has proved a valuable therapeutic agent in swine infections when given parenterally, it is ineffective when administered orally. From the standpoint of time and labor involved, treatment of individual members of a swine herd is a costly procedure. The thought has been expressed by some workers (28) that placental transfer of oxytetracycline in pregnant, infected sows was responsible for birth of healthier pigs of greater weight than pigs born to nontreated infected sows. To further explore this possibility investigators (28) injected sows late in pregnancy with a single dose of 2 mg. of oxytetracycline per pound of body weight. Pigs were delivered six hours later by Caesarian section. The concentration of antibiotic in fetal blood and maternal blood was found to be the same. And concentration in amniotic and allantoic fluids was 25 times higher than in blood and 50 times greater than in the sow's urine. Additional studies (29), recently completed, indicate that a high level of oxytetracycline at 500 gm. per ton of complete ration fed for 14 days to infected herds may be effective in eliminating the carrier state in a high percentage of pigs with leptospirosis. Although a relatively small number of animals was used in the test, the data obtained were subjected to careful statistical analysis which showed that, for pigs, in general, 500 gm. of oxytetracycline per ton of feed would eliminate the organisms from the urine in 94 out of 100 cases. It would appear that this method of herd treatment coupled with a prophylactic vaccination program and general improvement in farm sanitation would go a long way toward eliminating carrier animals and stimulating production of large, healthy, viable swine litters.

Vaccination of cattle and swine with formalin-killed suspension of **L. pomona** has shown great promise in halting spread of this costly disease. Immunity conferred by vaccines affords protection against infection for at least six months. Long persistence of antibodies and marked resistance of recovered animals to reinfection have been pointed out (16) as evidence of immunity of long duration. Vaccination is recommended under the following conditions allowing at least 7 days for adequate production of antibodies:

1. In face of abortion storms or acute outbreaks of infection, to protect susceptible healthy members of the herd; 2. On farms that have a high turnover of stock where danger of importing carrier animals exists; 3. On farms located adjacent to infected premises; 4. When cattle or swine are to be shipped to fairs, auction barns or other gatherings; 5. Where susceptible cattle are to be added to known infected herds; 6. When cattle, especially feeder stock, are exposed to infected swine herds.

In addition to outlining a program for treatment and vaccination of swine and cattle, the veterinarian should emphasize the following preventive measures on farms with infected herds:

1. Prompt isolation of sick animals or suspected carriers.

2. Sterilization and discarding of milk from diseased cows, emphasizing the danger of feeding such milk to calves, pigs or chickens.

3. Deep burial or burning of infected carcasses, bedding, afterbirth and aborted fetuses from infected dams.

4. Purchase of replacement cattle no earlier than three months after the last case of leptospirosis has been reported. Whenever possible, suggest making herd replacements with vaccinated stock. If necessary, serological examination of replacement animals may be resorted to before adding them to the herd.

5. Importance of an intensive rodent control program. Wherever possible, fencing out all forms of wildlife, which may be carriers of infection.

6. Revaccination of animals every six months until no new cases of infection occur and all known carriers have been eliminated from the herd or have become free of infection.

7. Need to exercise utmost caution in handling infected animals. Point out danger of infected urine or water contaminated by animal excreta in transmitting infection to man and other animals.

For additional copies of this article, write to Chas. Pfizer & Co., Inc., AGRAData, Agricultural Research & Development Department, Terre Haute, Ind.

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IDEAS TO HELP YOUR CUSTOMERS

15-Week-Old Turkeys

The following advantages and disadvantages of marketing turkeys before they are 15 weeks of age appeared in a recent issue of Featheredfax, prepared by the department of poultry husbandry, University of Massachusetts:

Advantages—

1. Excellent feed conversion. Conversions of 2.3 lb. or less of feed per pound of turkey can be realized at 13 weeks of age.

2. More efficient use of facilities. Since the growing period is shorter by about 10 weeks, more lots of poults can be grown.

3. Mortality losses less costly. By concluding the growing period early, losses which are normally experienced during the rest of a regular growing period obviously cannot occur.

4. More versatility for grower-retailers. The young market turkey program is better designed for small operators who have limited slaughtering facilities.

Disadvantages—

1. Poult cost per pound of meat is higher. The final product is smaller, therefore the poult cost must be absorbed by fewer pounds of salable turkey.

2. Higher dressing and packaging costs per pound for grower-retailers. Cost of dressing labor and the packaging material must be covered by fewer pounds of product. Smaller bird is easier to handle and faster to rough pick, but higher pinning costs probably would offset these advantages.

◆

Early-Cut Forage

Dairy farmers can save hundreds of dollars a year by cutting their hay early, according to Prof. Kenneth L. Turk, head, animal husbandry department, New York State College of Agriculture.

Advantages of early-cut forage, he said, are better taste, easier digestion and more energy value. "It's not uncommon to see high-producing cows eat almost twice as much early-cut as late-cut hay," Prof. Turk stated.

He conceded that early harvesting sometimes means problems with the weather and difficulties in curing, but "it's important," he maintained, "to balance against this the amount of concentrates the farmer can replace in the cow's ration by early-cut forage."

Citing an example of a farmer feeding 30 cows which produce about 40 lb. milk daily, Prof. Turk commented, "If enough concentrates are fed to meet the energy needs of these cows, it will cost about $170 a month more for grain when forage is cut at the bloom stage rather than at the bud or heading stage. If a farmer waits until the full-bloom or seed stage, his grain bill goes up $250 a month."

◆

Hog Floor Cleaning

Swine producers may be interested in how a LaSalle County, Illinois, feeder keeps his 200-hog feeding floor clean with 20 minutes of work a day.

He hand-scrapes the concrete finishing floor, follows it with a water rinse and collects this liquid manure to spread on his fields. According to the University of Illinois, this system works well with normal farm water-line pressure.

The feeder, Martin Williamson, believes this flushing system keeps his swine facilities clean enough to give him good disease control. Also, he is bothered less with odors and flies.

Cleaning with water alone requires higher water pressures and more water than hand-scraping first and then rinsing with water. Roy Unzicker, Woodford County, uses about 1,500 gal. water for 1,000 hogs each time he cleans, but he washes the floors only once a week until the pigs weigh over 100 lb. and twice a week after that.

D. G. Jedele, extension agricultural engineer, University of Illinois, reported that at least 23 liquid manure systems are in use on Illinois farms. Most systems use hand-operated hoses and pressures varying from 100 to 125 lb. per sq. in. The University

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But then ask him what he likes best about his Butler bulk system, *now that he's been handling feed in bulk for a while*. More than likely, the first thing he'll mention is the way bulk feed handling has helped him cut operating expenses.

Since switching to bulk feed, Mr. Udell has reduced his operating costs enough to pay for his Bulk-O-Matic depot the first year. He has also increased his volume about one-fourth, gained several new big-volume customers and doubled his profitable delivery area.

Low-cost Butler Bulk-O-Matic tanks are available in a wide range of sizes. They can be used individually as self contained units. Or a complete Butler Bulk-O-Matic feed center, with augers, belt or screw conveyors and bucket elevators can be tailored to fit your specific needs.

For full details on Butler Bulk-O-Matic systems—the modern way to sell more feed at lower cost and make more profit—write the Butler office that is nearest you.

BUTLER STEEL PRODUCTS

BUTLER MANUFACTURING COMPANY

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Manufacturers and Suppliers of

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MATERIAL HANDLING EQUIPMENT

Write for information and prices

The V. D. ANDERSON COMPANY
Division of International Basic Economy Corporation
1900 West 96th Street, Cleveland 2, Ohio

Richard F. Heine

PRODUCT MARKETING — Richard F. Heine has been appointed manager of product marketing, it was announced by McMillen Feed Mills, feed division of Central Soya Co., Inc., Ft. Wayne. Before joining McMillen Feed Mills Mr. Heine was president of Sherman White & Co., Ft. Wayne. In his new position he will be responsible for developing and maintaining markets for meat, milk and eggs. A 1931 graduate of Williams College, Mr. Heine is a member of the board of directors of the Institute of American Poultry Industries, and the dairy advisory committee to the Indiana State Board of Health.

of Illinois Hog-O-Matic system, on the other hand, uses a timeclock-controlled rotating boom with a pressure of about 75 lb. per sq. in. on a 10-ft.-long slope.

Mr. Jedele recommended that an underground storage tank for holding liquid manure be big enough for a week's collection, figuring a minimum of two gallons daily for each hog in the lot. Some feeders are using an ordinary 4-in. grain auger for pumping liquid manure.

He noted that most liquid manure spreading devices in use are homemade and that agricultural engineers need to study the problem thoroughly and help to design efficient and effective collection and distribution systems.

It was also recommended that floors built to collect liquid manure be covered to keep rain from flooding the storage tank. Mr. Jedele said slopes can vary from a quarter inch to 1 in. per foot and one fourth inch is enough slope for gutters. One half inch per foot seems about right for floors, but 1 in. per foot may be used in dunging areas, he said.

◆

Feeder Pig Price

Using current feed prices and the hog outlook as points of judgment, the University of Minnesota and Virginia Polytechnic Institute figured a producer could afford to pay about $13 apiece for feeder pigs this spring. But these estimates were not made without qualification.

Paul Hasbargen, University of Minnesota extension farm management specialist, said his $13 estimate was based on good quality feeder pigs, average feeding efficiency and a selling price of $17 cwt. when the pigs weigh 210 lb. He also commented that prospects aren't that bright for poor quality pigs.

An estimate of $12.77 as a feeder pig price was arrived at by Roie M. Godsey, VPI swine specialist, using a hypothetical case involving estimated feed and housing costs, possible death loss and projected market prices.

OPENS NEW PLANT

MERCED, CAL.—The Cook Feed & Cattle Co. is opening a new plant. Jack Collins has been named grain buyer for the firm.

REPEAT CUSTOMERS PROVE . . . THE
WHIRLWIND FEEDER
DOES A BETTER JOB—LONGER!

For mineral and salt feeding. It's portable, durable—all steel corrosion-protected! For details regarding dealerships write . . .

COLLIER LIVESTOCK FEEDER CO.
BOX 896-G, RALLS, TEXAS

ADVERTISEMENT — This is a paid advertisement — Prepared by U. S. Industrial Chemicals Co.

U.S.I. FEED NEWS

Vol. VI ★ A SERIES FOR SCIENTISTS AND EXECUTIVES OF THE FEED MANUFACTURING INDUSTRY ★ No. 5

Vitamin A Helps Poultry Resist Roundworms

High levels of vitamin A in feed help poultry to maintain reasonable health and production in spite of infestation with large roundworms. Where ordinary recommended levels of vitamin A are used in feed, worm-infested birds show damage typical of vitamin A deficiency as well as worm damage. In the test flocks, 63% of total mortality is shown to be due to damage by worms and vitamin A deficiency.

Alcohol in Steer Feed Increases Weight Gains

Feeder steers receiving 3 ounces of alcohol (ethanol) per head daily gained .11 pound more per day than steers on the same ration without alcohol, according to recent tests. The steers getting alcohol also required 21 pounds less feed per 100 pounds of gain. In the tests, carcass grade of cattle fed alcohol averaged one-tenth higher than for animals on the check ration.

Ethanol is an important ingredient in MOREA liquid feed, a labor-saving new supplement designed especially for ruminant animals.

Hot Weather Calls For Adequate Methionine

The high-fat, high-energy modern broiler feeds call for plenty of methionine, as hot weather approaches. Many tests show that animals eat only enough feed to satisfy their caloric needs. As hot weather reduces caloric needs and appetites, and also causes extra stress, the amount of methionine per pound of feed must be kept high. This helps make sure the birds get enough methionine in reduced feed intake to offset stress conditions and to produce best growth and feathering.

The new MOREA pre-mix plant is only part of this huge complex of U.S.I. chemical production facilities. Its location is in the upper right center of the photo, near the alcohol plant.

U.S.I. Now Producing MOREA® Liquid Feed in Modern Plant at Tuscola, Illinois

The first fully-integrated plant for making MOREA liquid feed pre-mix is now in full operation at Tuscola, Illinois. It serves territory east of the Mississippi and the capacity of the plant is adequate to supply the growing number of U.S.I. mixer-distributors now being appointed.

Authorized mixer-distributors combine MOREA liquid feed pre-mix with molasses of specified quality in their own local plants, to manufacture MOREA liquid feed supplement for ruminant animals. Alcohol (synthetic ethanol) used in MOREA liquid feed is produced right at Tuscola in the U.S.I. plant. Also produced at the U.S.I. chemical complex at Tuscola are nitrogen and phosphoric acid.

MOREA liquid feed is gaining wide acceptance among feedlot operators, beef cattle producers, dairymen and sheep growers. It is a carefully formulated supplement containing molasses, urea nitrogen, ethanol, phosphoric acid and trace minerals.

The new plant is designed for precision formulation of the liquid pre-mix product. Liquid handling and mixing make for high labor efficiency in the U.S.I. plant, in the mixer-distributor's plant and on the farm. In addition, MOREA liquid feed helps cattle and lambs produce faster gains on an economical ration. It also produces well-marbled meat with less waste fat. Dairy farmers find that MOREA liquid feed increases milk production and lowers total feed cost.

Distributorships Open

Some territories are still available for new MOREA mixer-distributors. If you have a sales organization calling on farmers, MOREA liquid feed can increase your profits. For information, write U.S.I. today.

FEED PRODUCTS OF U.S.I.

- U.S.I. ANTIBIOTIC FEED SUPPLEMENTS (bacitracin and procaine penicillin)
- U.S.I. VITAMIN B_{12} SUPPLEMENTS
- U.S.I. MENADIONE PRODUCTS (vitamin K_3)
- U.S.I. BHT PRODUCTS
- U.S.I. CUSTOM MIXES
- U.S.I. RIBOFLAVIN PRODUCTS
- U.S.I. CHOLINE CHLORIDE (25% dry or 70% solution)
- MOREA® PREMIX (sold only to authorized mixer-distributors)
- U.S.I. CALCIUM PANTOTHENATE Products
- U.S.I. DL-METHIONINE (feed grade)
- U.S.I. PERMADRY (sealed-in vitamin A)
- U.S.I. VITAMIN D_3 (stabilized)
- U.S.I. NIACIN
- U.S.I. VITAMIN E PRODUCTS

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U.S.I. INDUSTRIAL CHEMICALS CO.
Division of National Distillers and Chemical Corporation
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Dr. Salsbury's Laboratories—
the Scientific Approach to Poultry Health Problems

DR. SALSBURY'S NEW COCCIDIOSTAT

UNISTAT®

Scores highest on the profit test

FEED EFFICIENCY NECESSARY

Broiler growers everywhere are pretty well agreed that Dr. Salsbury's UNISTAT is the best coccidiostat on the market today. And many have also learned that it scores highest on the "profit test." That is, they make more money using UNISTAT than any other coccidiostat. Why? Because UNISTAT not only provides superior protection against the disease—it also gives growers other important profit benefits, such as **better coloring, faster growth,** and **increased feed efficiency.** Of these, **feed efficiency** is the most necessary to profits. Birds *must* make top gains per pound of feed. Records indicate that UNISTAT passes this test with flying colors. Thousands of flocks have demonstrated over and over again that UNISTAT-fed broilers *need less feed per unit of gain.* This, added to to all the other benefits of UNISTAT, can materially increase your customers' profits.

EFFICIENCY UP 10 POINTS WITH UNISTAT

Here's a typical letter from a grower (name on request) who raises a million broilers a year. He says, "**Our feed efficiency has improved more than 10 points** *over the same period of last year while coccidiosis has not been a problem with us. We feel that the pigmentation, finish and quality of our birds has been greatly improved with UNISTAT feed. UNISTAT is now in our ration* 100%, *but we field-tested a number of coccidiostats before we made this change.*"

This grower, like thousands of others, has discovered that UNISTAT scores highest where it counts most: *On the profit side of his record book.* That's the test that really counts. And that's why you'll want Dr. Salsbury's UNISTAT in all your feeds for chicks, broilers and growing chickens. It can build bigger profits for you and your customers.

Please write for Feed Manufacturers Guide and further information on UNISTAT

Dr. SALSBURY'S Dr. S LABORATORIES

NATIONWIDE SERVICE TO THE FEED INDUSTRY

Letters to the Editor

Merchandising Plan

Cayuga, N.Y.

To the Editor:

The fine coverage you have given to the organization of the AFMA Sales Executives Council and more recently coverage of the new AFMA Feed Merchandising Plan is very gratifying. This type of publicity and recognition in editorials as well as news stories will go far to acquaint the industry with the Feed Merchandising Plan, and I am sure will hasten its approval by more and more members of the feed industry.

As methods of livestock production continue to undergo rapid change, our industry is carried along as a vital part of this change. This makes the accurate reporting of facts and views ever more important as time goes on. We feel that the Feed Merchandising Plan is a strong guidepost in our struggle to keep feed sales and marketing on a sound plane. In the future I am sure other equally vital guideposts will develop.

Robert E. Miller
General Sales Manager
The Beacon Milling Co., Inc.

New York Medication, Drug Issue Stalemated

ALBANY, N.Y.—Proposed legislation on the issue of legalizing the admixing in feed and the sale in packaged form in New York of drugs and medications for livestock and poultry by feed firms and hatcheries has stalemated in the legislature, it is reported.

The Eastern Federation of Feed Merchants reported that an assembly bill legalizing feed stores and hatcheries to admix drugs and medications in feed and to sell them in packaged form passed the assembly. However, the companion bill in the Senate died there after clearing the educational committee to which it was referred.

Bills introduced at the request of the New York State Pharmaceutical Assn. met a similar fate. A Senate bill which would restrict the sale by manufacturers, wholesalers or jobbers of drugs and medications only to licensed pharmacists passed the Senate, but a companion bill in the assembly died in the rules committee.

The EFFM said the result is that the law on distribution of drugs and medications for livestock and poultry remains as it has existed for several years. It is unlawful for others than a licensed pharmacist to distribute these materials. The bulletin said, however, that the possibilities of prosecution of feed businesses for distributing such drugs and medications is remote. Pharmaceutical people did not oppose the bills introduced at the request of feedmen, but veterinarians did, the bulletin said.

DAMAGED BY FIRE

TULE LAKE, CAL.—The Winema Elevators here were seriously damaged by a fire which swept through the plant recently. Company executives said they are planning to rebuild.

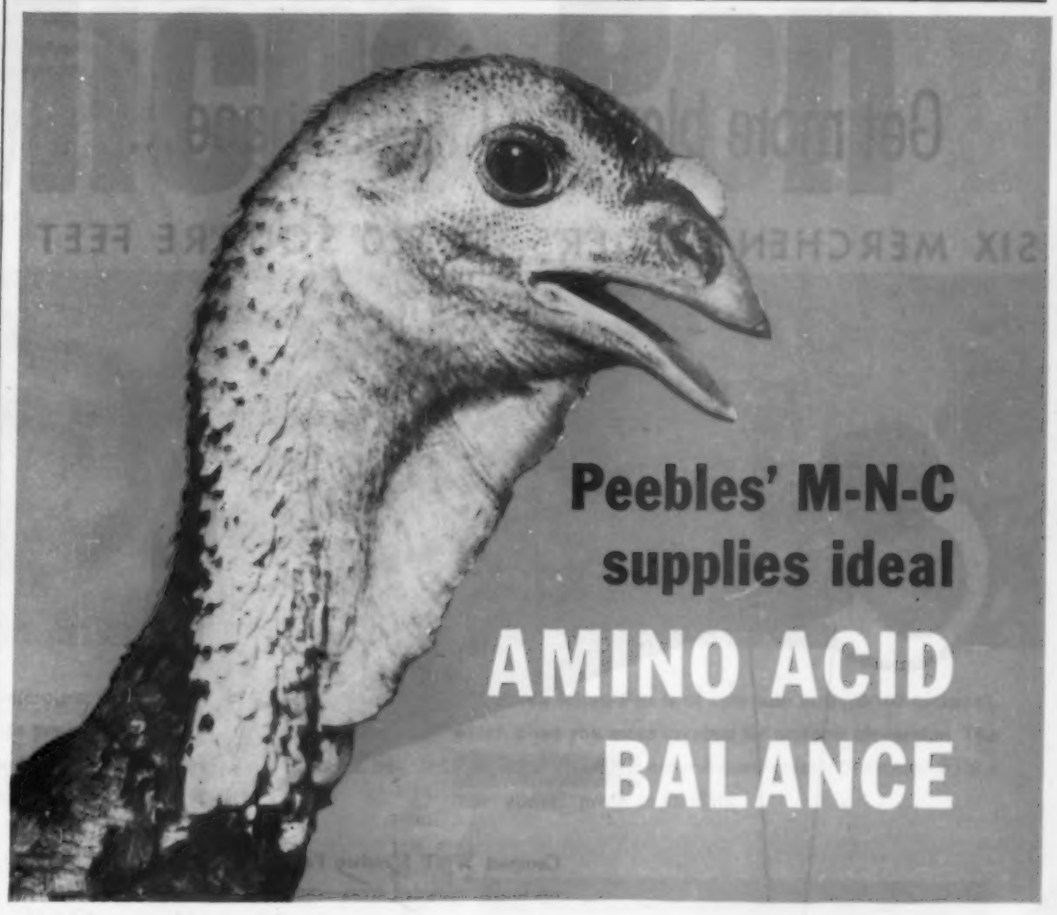
CHARLES H. HUBBELL
CONSULTANT
Feed Formulation and Research
Phone—Wabash 2-9065
53 W. Jackson Blvd. Chicago 4, Ill.

Firms Seek $218,000 In Counterclaims

IOWA CITY, IOWA—Protein Blenders, Inc., Iowa City, and Maplecrest Turkey Farms filed counterclaims in Washington county district court recently asking judgments totaling $218,000 from A. C. Gingerich, Wellman, Iowa.

The counterclaims are in answer to actions brought by Mr. Gingerich, who was president of Maplecrest prior to the merger of the two firms in 1956. Mr. Gingerich seeks judgments totaling about $350,000 from the firms in a suit filed last September.

A newspaper account of the action said it concerns contracts made at the time of the merger of the two companies for the transfer of stock and employment of Mr. Gingerich. In their answer and counterclaim, the two firms deny most of the allegations made by Mr. Gingerich and ask that his action be dismissed.



Improves nutritional value and feed performance!

Here's the best way to step up the efficiency of your turkey feeds. Incorporate Peebles' M-N-C (partially delactosed whey-product). For M-N-C gives you the vital amino acid balance that makes protein function with maximum effectiveness. M-N-C offers you the perfect, low cost source of the 12 essential amino acids.

In addition, M-N-C is concentrated to give you, pound for pound, 50% more non-lactose nutrients. Just 2½% M-N-C supplies the same amount of Whey factor and other growth-promoting elements as 4% whole dried whey.

Peebles' exclusive spray-dried process assures uniform high quality. M-N-C's smooth, even texture provides uniform color and even distribution in mixed feeds.

Find out how M-N-C can answer your amino acid requirements and give your feeds added nutritional value. Write or wire today for complete information.

WESTERN CONDENSING COMPANY
APPLETON, WISCONSIN
World's Largest Producer of Whey Products

32 PLANTS *Coast to Coast*

Cattle Feeding Test Results Told at Nebraska Feeders Day

LINCOLN, NEB.—Results of several beef cattle feeding experiments were reported at the recent 47th annual Feeders Day on the University of Nebraska College of Agriculture campus.

These experiments, completed during the past year, concerned creep-feeding of calves; hormones and tranquilizers in calf fattening; sorgo silage for wintering steer calves; roughage utilization; comparative values of different hays; feed value of artificially dried corn, and dehydrated alfalfa as a protein supplement. A beef carcass evaluation report was given also, and note was made of effects of pelleting low-grade roughage.

It was noted that the research reports this year covered only experiments completed during the past year. "Reporting data of incomplete experiments sometimes tends to mislead people as the results may change between the final date of the experiment and the time the progress results were reported," the college said.

Descriptions and results of the experiments as reviewed during the Feeders Day program by Dr. John Matsushima and Dr. Donald C. Clanton, members of the Nebraska department of animal husbandry, follow:

CREEP-FEEDING CALVES—Objectives of this experiment were: (1) To determine the value of creep feeds with and without an antibiotic for suckling beef calves, (2) to compare the performance of creep-fed calves with non-creep-fed calves from birth to weaning time and (3) to determine the value of an antibiotic in creep feeds in reducing calf scours and preventing liver abscesses.

One of three test groups was creep-fed, a second group also was creep-fed but received an average of 28.6 mg. Aureomycin per head daily in the creep ration and the third group was not creep-fed and did not receive any Aureomycin supplementation.

At weaning time, calves receiving antibiotic supplement weighed approximately 26 lb. less than the creep-fed calves that received no antibiotic. This difference was attributed largely to amount of creep ration consumed. Calves without the antibiotic consumed about 65% more creep feed. Calves not creep-fed weighed about 68 lb. less at weaning time than the creep-fed calves not fed an antibiotic.

An earlier trial showed the Aureomycin-fed calves were 11.2 lb. lighter at weaning time. This lighter weaning weight was attributed to the lower creep feed consumption caused by the sifting out of Aureomycin supplement and other fine materials. In order to avoid this separation for the latter trial, the creep feed was pelleted. Results indicated that the pelleting of the creep feed did not affect consumption.

When calves were slaughtered, following their use in a fattening experiment, each liver was examined carefully. Liver condemnation due to abscesses was 5.3% for the treated group and 13.2% for the control group.

HORMONES, HORMONE-LIKE SUBSTANCES AND TRANQUILIZERS FOR FATTENING CALVES—Experiments were conducted to compare the feedlot performance of creep-fed calves when treated with: (a) 5 mg. stilbestrol from weaning to approximately 600 lb. and then increased to 10 mg. per head daily; (b) 20 mg. tranquilizer per head daily plus the same treatment as in (a) above, and (c) Synovex-S hormone implant of 1 mg. progesterone and 20 mg. estradiol benzoate.

Other objectives of the experiments were to compare the effects of these treatments with: Control animals; non-creep-fed calves with stilbestrol treatment as in part (a) above, and non-creep-fed calves treated with male hormone at the time of castration.

Ten lots of steer calves were fed 228 days on a fattening ration consisting of ground shelled corn, chopped alfalfa hay, ⅓ lb. soybean oil meal and 1 lb. dehydrated alfalfa pellets. Two lots of steers were fed 5-10 mg. stilbestrol per head daily; two lots were fed 20 mg. tranquilizer plus 5-10 mg. stilbestrol; two lots were implanted with Synovex, and two lots were controls.

Steers from eight lots had been creep-fed prior to this experiment. The additional two lots of steers were not creep-fed and weighed about 35 lb. less at the start of the feeding test. One lot of these steers was implanted with a male hormone, Testosterone, at the time of castration. The other lot of steers was not implanted.

Results showed that the implant did not increase the gains significantly but did make the steers appear "staggy" for quite a long period.

Steers implanted with Synovex, fed stilbestrol and those fed a tranquilizer with stilbestrol gained faster than the control. The response in gain from the various treatments was not as great as compared to the results obtained in a similar experiment a year ago.

The increase in steer gains and feed efficiency, respectively, for the various comparisons were as follows:

Stilbestrol vs. control, 3.3 and 3.6% increase; Synovex vs. control, 2.3 and 2.8% increase; tranquilizer (and stilbestrol) vs. stilbestrol, 2.3 and —0.1%; stilbestrol vs. Synovex, 0.9 and 0.8%; Testosterone implant vs. no implant, 1.8 and 2.9%.

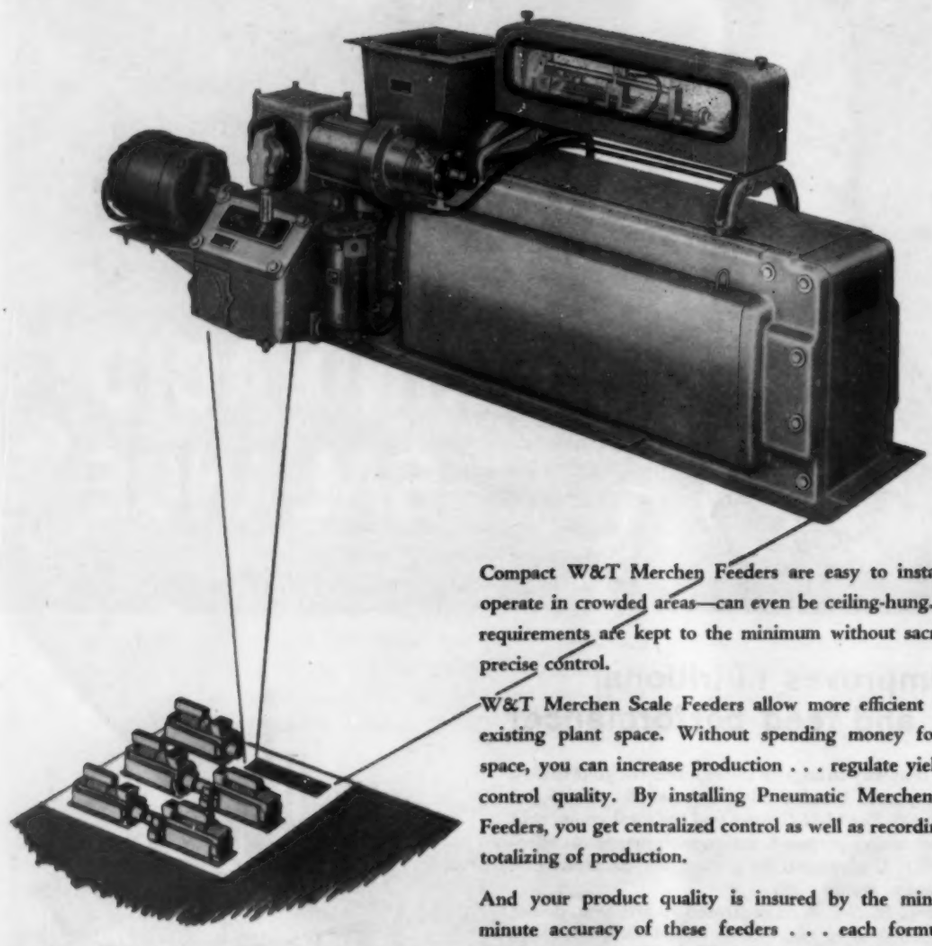
According to the researchers there were no undesirable side effects shown in any of the cattle during or at the conclusion of the experiment. Visual appraisal of the degree of marbling, general carcass conformation and other carcass characteristics were not affected by any of the treatments compared in the test.

Cattle in the experiment had no

(Turn to NEBRASKA, page 72)

Get more blending in less space...

SIX MERCHEN FEEDERS IN 120 SQUARE FEET



Compact W&T Merchen Feeders are easy to install and operate in crowded areas—can even be ceiling-hung. Space requirements are kept to the minimum without sacrificing precise control.

W&T Merchen Scale Feeders allow more efficient use of existing plant space. Without spending money for new space, you can increase production . . . regulate yield . . . control quality. By installing Pneumatic Merchen Scale Feeders, you get centralized control as well as recording and totalizing of production.

And your product quality is insured by the minute-to-minute accuracy of these feeders . . . each formula ingredient is accurately fed by weight into your blend.

Learn how you can save space and money with W&T Merchen Feeders. Write to Dept. M-45.36.

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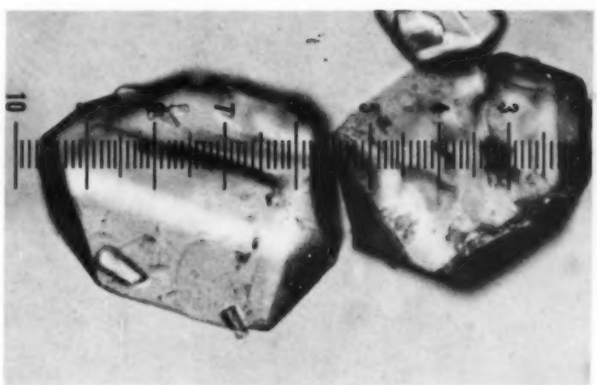
TEAR OUT AND FILE

A SPECIAL REPORT TO FEED MANUFACTURERS, NUTRITIONISTS, AND RESEARCH DIRECTORS

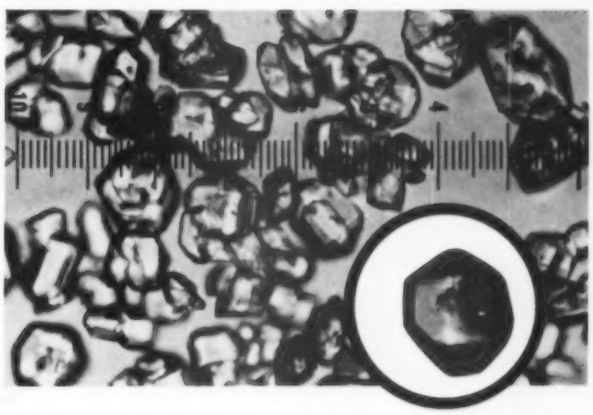
Now...a new form of penicillin that will give you both stability and dispersion

Micro-Pen™

(special coated procaine penicillin G, Lilly)



This is a photomicrograph of the common 200-300 micron size of feed-grade penicillin previously required to provide the stability needed. However, dispersion was poor because of large crystal size.



Lilly's new Micro-Pen is of optimum size (75-100 microns), which gives you more crystals for uniform dispersion. The special coating around each crystal (indicated by the inset above) protects stability.

THE PROBLEM WAS:

Penicillin crystals small enough for proper, uniform dispersion had low stability. Crystals large enough to hold good stability lacked good dispersibility.

NEEDED:

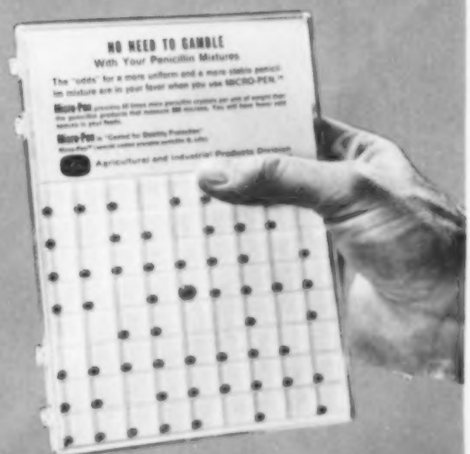
Small crystals for better dispersion that could maintain a high percentage of potency under heat, moisture and pressure.

SOLUTION:

Small, optimum-sized crystals with a special coating that locks in the potency. Lilly's Micro-Pen fulfills these qualifications.

On the next page you will find descriptive research information about this important new product by Lilly . . .

See this Micro-Pen demonstration. Ask your Lilly representative to show you how the basic principle of Micro-Pen gives you much better control over penicillin dispersion in your feeds.



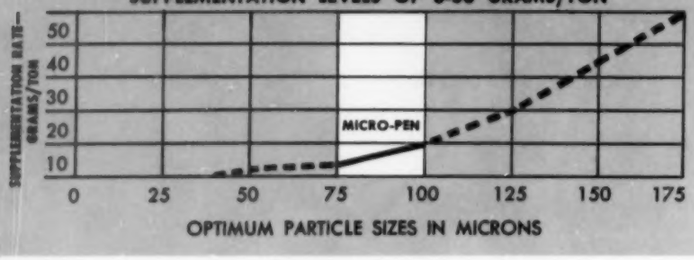
He will be happy also to show you the complete research data from which the information on the following page is taken.

Comparative studies prove Micro-Pen™ combines dispersibility with stability

1. DISPERSION MICRO-PEN HAS THE OPTIMUM PARTICLE SIZE FOR SUPPLEMENTATION

The graph below is taken from a study by Bloom and Livesey.* It illustrates the optimum particle sizes of penicillin needed for supplementation levels of 0-50 grams per ton. As clearly shown on the graph, the 75-100 micron particle size of Micro-Pen falls into the optimum range for a supplementation level of 4-10 grams per ton.

OPTIMUM PARTICLE SIZES OF PENICILLIN FOR SUPPLEMENTATION LEVELS OF 0-50 GRAMS/TON



MICRO-PEN PROVIDES MORE UNIFORM DISPERSION OF PENICILLIN CRYSTALS

This next table illustrates the dispersion of different particle sizes by showing the number of particles found in a unit of feed mixed at a supplementation level of 4 grams per ton. From this study, it was observed that Micro-Pen provided approximately 55 times more particles per unit of feed than the commonly used 300-micron penicillin crystal.

APPROXIMATE NUMBER OF PENICILLIN PARTICLES/GRAM OR POUND IN A SUPPLEMENTATION LEVEL OF 4 GRAMS/TON

AVERAGE SIZE (In Microns)	PARTICLES/GRAM	PARTICLES/POUND
25	90	42,000
50	11	5,160
75	**3**	**1,320**
100	1	546
150	0.6	258
250	0.1	42
300	0.05	24

Bloom, C., and Livesey, E. F. "Particle Sizes for Additives to Animal Feeds." Mfg. Chemist 24:371-375 (Sept. 1953)

2. STABILITY STABILITY STUDIES PROVE MICRO-PEN'S SPECIAL COATING PROTECTS POTENCY

Five brands of penicillin products (including Micro-Pen) were observed microscopically to determine average particle size. After classification by size, these brands were mixed into five batches of a commercial-type broiler ration at the level of one gram of procaine penicillin activity per pound. All five batches were mixed uniformly, as indicated by microbiological assays.

Three samples from each batch of feed were given the Arnoldization test. Each sample was placed in a closed, preheated cabinet and subjected to live steam at a temperature of approximately 100° C. for five minutes. A distinct correlation was seen in all instances, except for Micro-Pen, between the average particle sizes and their ability to retain activity after Arnoldization. Micro-Pen, with an average particle size less than one-half that of the next most stable penicillins, retained a comparatively high percentage of its activity. The results of this test are shown below.

	MICRO-PEN	PENICILLIN A	PENICILLIN B	PENICILLIN C	PENICILLIN D
Average range of particle sizes (in microns)	75-100	30-40	200-300	30-40	200-300
Percent retention of stability after Arnoldization (simulated pelleting)	85	61	79	58	76

ACTUAL PELLETING TEST CONFIRMS STABILITY OF NEW LILLY MICRO-PEN

A 500-pound batch of the basal broiler ration containing Micro-Pen was pelleted. Feed samples were collected in triplicate for penicillin assays. Temperatures were recorded at the following times: (1) before pelleting, (2) immediately after the hot 3/16-inch pellets came from the pelleting chamber, and (3) at the time the cooled pellets were bagged in regular multiwalled-paper feed bags. The actual data is shown below:

PELLETING DATA FOR MICRO-PEN

Penicillin activity/pound of mash	1.073 Gm.
Maximum temperature of steamed mash	122.0°F.
Maximum temperature of pellet from pellet chamber	141.8°F.
Temperature of cooled pellets when sampled	73.4°F.
Activity retained in cooled pellets	93.8%

3. CONCLUSIONS THE PRINCIPLE OF MICRO-PEN IS SIMPLE IN ITS LOGIC:

(1) The optimum particle size of the crystal greatly improves the dispersion pattern of the penicillin.

(2) The special coating protects the potency of the crystal.

(3) The end result is feed that more consistently delivers the proper amount of growth-giving, health-protecting penicillin to the animal.

Further improve your feeds with this new type of procaine penicillin G . . . stable . . . dispersible . . . MICRO-PEN™

Lilly

Eli Lilly and Company
Agricultural and Industrial Products Division
Indianapolis 6, Indiana

TEAR OUT AND FILE ——→

ing page is taken.

Charles L. Sapper

IBM SUPERVISOR—Charles L. Sapper has been named IBM supervisor of The Miller Publishing Co., Milton B. Kihlstrum, president, announced recently. Mr. Sapper is currently organizing the publishing firm's new electronic tabulating department and will be responsible for circulation fulfilment of the company's seven business publications, including Feedstuffs. For the past six years he was with the Meredith Publishing Co. in Des Moines where he supervised circulation fulfilment services for Better Homes & Gardens and Successful Farming.

Students Tour Feed Mill in Ontario

PORT COLBORNE, ONT.—Senior students of the Ontario Agricultural College recently toured the Port Colborne, Ontario, mill of Pioneer Cafeteria Feeds, Ltd., to see how knowledge of animal and poultry nutrition is applied in the formulation and manufacture of commercial feeds. The senior class has toured the mill every year for 26 years.

Later the graduating class of the Ontario Veterinary College also toured the mill.

The Port Colborne mill, now the key mill in the recently-formed Pioneer-Cafeteria chain, is said to be not only the largest of its kind in Canada, but is the largest feed and flour manufacturing plant in the British Commonwealth.

The visitors were accompanied by seven professors and instructors from the OAC and OVC, editors and representatives from six farm publications, and representatives of the Canadian Broadcasting Corp., Ontario Veterinary Assn., Meat Packers Council and Canadian Cooperative Wool Growers.

According to a company announcement, the visitors were keenly interested in the measuring and mixing controls, and expressed particular interest in pre-mixing and re-mixing the various "additives" needed in minute quantities.

Following the tours, both groups of students were entertained by Pioneer-Cafeteria Feeds at a reception and dinner at Cedar Bay Inn near Port Colborne.

Cobb's Chicks Reports World Growth Record

CONCORD, MASS. — A "new world's record for broiler growth at eight weeks of age" has been set by a White Rock strain cross entry from Cobb's Pedigreed Chicks, Concord, in the first hatch of the 13th Maine production and broiler test, the firm has announced.

Two other entries, also utilizing Cobb White Rock breeding, tied for second and third places in average rate of growth. All three topped the previous high mark for meat production, the announcement said.

Championship honors for growth went to a cross of Cobb females with Peterson males which averaged 3.63 lb. per bird, pullets and cockerels, with a feed conversion of 2.14 lb. The announcement said this growth record was nearly one tenth of a pound higher than the previous test record of 3.54 lb., set in 1954.

The tie for runnerup honors found an entry of Cobb Strain Cross White Rocks and an entry of Cobb White Rock females with Vantress males both scoring 3.62 lb. per bird on a feed conversion of 2.14.

Records set in the Maine test were verified by cross-checking with other official broiler tests having an eight-week growing period, the announcement said.

Cobb Strain Cross White Rocks also turned in the top profit figure for the first hatch, it was announced. The return was 34.5¢ per bird return over feed costs.

Decline in Tankage, Meat Meal Reported

WASHINGTON — Production of meat meal and tankage declined again in 1957-58 for the third straight year, according to a recent U.S. Department of Agriculture feed situation report.

The 1,376,000 tons produced in 1957-58 was 120,000 tons less than in 1956-57, and 170,000 tons less than in 1955-56.

The combined production of the two products continued below the previous year's output in October and November of 1958. But, in December, production was about the same as a year earlier, reflecting increasing livestock slaughter.

Production of meat meal, including poultry by-product meal, in the 1957-58 October-September feeding year, totaled slightly over 1.1 million tons, 6% less than in 1956-57. Tankage production during 1957-58 was 14% below the previous year.

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Recent Developments in Turkey Feeding Experiments at Oregon State College

By J. A. Harper
Department of Poultry Husbandry

EDITOR'S NOTE: This article by J. A. Harper, associate professor, department of poultry husbandry, Oregon State College, was presented as a part of the 17th annual Oregon Animal Industry Conference, Corvallis, Ore., sponsored by the Oregon Feed & Seed Dealers Assn. in cooperation with the college.

v v

During the past two or three years nutritional experiments with turkeys have been aimed at finding feeding values of locally produced grains and more efficient rations. More specifically, the feeding trials have been concerned with the value of corn, wheat, barley and speltz; pelleting vs. mash for barley rations; additions of enzymes to barley rations; comparisons of protein levels, protein sources and synthetic amino acids in turkey starting feeds, and the relationship of vitamin K and other ingredients in diets to the problem of aortic aneurism or internal hemorrhages in growing turkeys.

Barley in mash or pellet form for turkey starting feeds. Barley has long been recognized by poultry and livestock feeders as being inferior in feed value to less fibrous cereal grains. The use of pelleting offers a promise of masking the fibrous nature of barley through increasing density of the feed. A feeding trial to determine this possibility was conducted using rations in mash or pellet form composed of grain sources from all corn, half corn-half barley or all-barley and fed to Broad Breasted Bronze poults from day old to eight weeks.

At eight weeks, growth rate of poults on the corn mash ration averaged 100 gm. over the half corn-half barley or all-barley ration. Pelleting the all-corn ration resulted in an average increase of nearly 100 gm. over the mash form. Pelleting the half corn-half barley or all barley rations yielded growth rates nearly 200 gm. above the mash forms and almost equal to the corn pellet. The feed conversion was improved by .05, .03 and .09 lb. of feed per pound gain through pelleting for the corn, corn-barley combination and all-barley rations, respectively.

Poults required nearly .25 lb. more feed to make a pound gain on the all barley ration compared to all corn. Feeding barley in mash or pellet form had a marked detrimental effect on litter condition as compared to the corn ration.

Barley and enzyme in turkey starting rations. Poultry research at Washington State College reported by Fry, Allred, Jensen and McGinnis (1958) has demonstrated that amylolytic enzyme addition to barley rations increases the value of barley in poult rations. Their finding suggests the possibility that enzyme action aids in converting carbohydrates to more readily available sugars. Work at this station was undertaken to confirm and extend this information.

Six duplicate lots of Beltsville Small White turkeys were fed from day old to 14 weeks on all mash diets with the principal carbohydrate source either corn; barley; barley plus 1 gm. enzyme (Clarase 300) per pound feed; barley plus 2 gm. enzyme; barley plus 10% sucrose and barley plus 10% cerelose. Results are shown in Table 1.

TABLE 1. Corn vs. Barley and Enzyme for BSW (OSC, 1958)

Ingredient	14-Wk. wt.	Feed/lb. turkey
Corn	7.24	2.99
Barley	6.17	3.68
Barley + 1 gm. Enzyme	7.23	3.44
Barley + 2 gm. Enzyme	7.23	3.43
Barley + 10% Sucrose	6.95	3.44
Barley + 10% Cerelose	7.07	3.48

Duplicate lots 22 poults.

At 14 weeks the corn lots averaged 1 lb. heavier per bird than the straight barley lots. Adding enzyme at either level produced equivalent growth and body weights to the corn rations. The barley plus sugar rations produced growth rates approximately .2 to .3 lb. less than the corn or barley plus enzyme lots. The straight barley lots required nearly .7 lb. more feed per pound gain than corn lots and .2 more lb. than barley plus enzyme or sugar-fed lots. The wet litter problem was not improved materially by enzyme additions to the barley rations.

In additional trials, poults were fed to four weeks of age on rations like those above with the exception that two levels of sucrose were used and enzyme was added to the barley-sugar rations.

Adding enzyme to the all barley ration gave a growth increase equal to the corn rations. There was again no advantage to using 2 gm. enzyme per pound of feed as compared to a 1 gm. level. The addition of sucrose at a level of 5-10% of the barley diet did not increase growth rate over the barley ration as shown in the previous comparison, and in the later trial there was a growth depression.

Adding enzyme to the barley-sucrose ration did not improve growth rate over the barley-enzyme feed. The feed conversion through addition of enzyme to barley diets was intermediate to all corn or all barley rations. Again there appeared to be no improvement in wet droppings condition of poults fed barley rations plus enzyme as compared to corn fed lots.

Barley in mash or pellet form in turkey developing rations. Turkeys consume approximately 90% of total feed between 8 and 24 weeks of age. In comparing value of feed grains, it is of interest to determine the value of barley during this growth period and effect of mash or pellet form upon feed conversion.

Developing mashes were formulated containing 20% protein using either all corn, half corn-half barley or all-barley as the source of grain. These feeds were fed in mash or pellet form from 8 to 24 weeks of age along with free choice of whole wheat as a grain. Two additional duplicate lots were fed the barley developer plus free choice of whole or pelleted barley. A summary of the experiment is given in Table 2.

Growth rate and feed conversion

TABLE 2. Growth and Feed Conversion of B.B.B. Turkeys From 8 to 24 Weeks on Developer Mashes Composed of Corn, One Half Corn-One Half Barley or All Barley With Wheat and Whole or Pelleted Barley as Grain (OSC, 1956)

—20% Developer— Grain	Form	Scratch Grain	Av. 24-wk. weight Toms	Hens	Feed conversion 8-24 wk.	Per cent grain of total feed
Corn	Mash	Wheat	22.7	15.3	3.96	38.5
Corn	Pellet	Wheat	22.0	15.0	4.07	43.5
½ Corn ½ Barley	Mash	Wheat	22.7	14.9	3.88	42.2
½ Corn ½ Barley	Pellet	Wheat	22.7	15.2	4.02	43.5
Barley	Mash	Wheat	21.3	14.1	4.30	41.0
Barley	Pellet	Wheat	22.0	14.0	4.28	45.7
Barley	Pellet	Whole Barley	20.7	14.1	4.36	32.0
Barley	Pellet	Pelleted Barley	22.6	13.4	4.31	34.2

Duplicate lots 26 turkeys.

TABLE 3. Chemical Analysis of Grains (OSC, 1958)

	Protein	Fat	Fiber	Ash
	%	%	%	%
East corn	8.25	3.76	2.19	1.25
West corn	8.32	4.18	2.25	1.19
Barley	10.58	1.66	4.48	2.56
Speltz	9.12	1.58	7.95	2.84

TABLE 4. Grain Source Effect on Growth of BBB Poults (OSC, 1958)

Grain	8-Wk. weight	Feed/lb. turkey
East corn	3.92	2.00
West corn	3.92	1.94
Barley	3.78	2.11
Barley + 1 gm. Enz.	3.75	2.08
Speltz	3.84	2.29
Wheat	4.12	2.02

Duplicate lots 30 poults.

for the all corn or half corn-half barley ration were equal, whereas growth rate (especially for hens) and feed conversion were poorer for all-barley diets. Pelleting did not improve the feed conversion over mash fed groups for turkeys of this age. Likewise, pelleting of whole barley as a grain failed to improve its palatability in comparison with wheat.

Soaked whole barley as grain for developing turkeys. In a report from the Washington Station (Fry et al., 1958) it has been observed that soaking barley and redrying previous to adding to a poultry ration will result in increased value of barley for growth. Due to the cost involved this procedure is at present uneconomical. In order to determine if soaking whole barley would be sufficient to improve its nutritive qualities, a trial was conducted comparing soaked barley for 14 hours prior to feeding in an equal or one half its weight in water. A 20% protein developer mash composed of half corn-half barley was fed to all lots free choice. Duplicate lots were fed either whole wheat, corn, barley, barley soaked in equal weight of water, barley soaked in half its weight in water and addition of one half gram per pound feed of enzyme (Clarase 300) to the mash of lots fed whole barley grain.

There was no difference in growth for turkeys fed these rations between 10 and 24 weeks of age. Soaking barley did not improve its value nor did adding enzyme at a level of less than one half gram per pound of feed intake.

Oregon grains compared to eastern corn for growth of turkeys. Due to the high freight cost for shipping feed grains into Oregon there is real need to utilize locally produced grains to the fullest advantage. Corn is produced in Oregon to a limited, but increasing extent. In 1957 some 42,000 acres of corn were grown in Oregon with an average yield of 70 bu. per acre. About one half of this was cut for silage.

With newer varieties and better drying methods available, it is now possible to produce a better quality corn with less risk than formerly. In order to produce sufficient corn for poultry feeds alone, the present acreage in Oregon needs to be doubled. Other local grains such as wheat, barley and speltz need continuing evaluation and consideration for poultry feeds.

In determining feeding value of some of the local grains for turkeys from day old to eight weeks, a trial was carried out using eastern corn, Oregon corn, barley, barley plus enzyme (HT 440), speltz and wheat. The chemical analyses determined for these grains are presented in Table 3, according to analysis by the Oregon State College department of agricultural chemistry. Body weights and feed conversion data are given in Table 4. It will be noted that the eastern corn, western corn and wheat fed poults were similar for both measures.

The barley fed poults grew at a slightly less favorable rate and required more feed to produce a pound of turkey. There was not any improvement in growth in this trial for poults fed barley rations with an enzyme. This failure to obtain a growth response with enzymes is encountered from time to time and an explanation is not readily available at this time. It might possibly be due to the enzyme activity of a particular lot or to variation in barley.

A further comparison of feeding value of eastern corn, western corn and speltz was made with turkeys from 8 to 24 weeks of age using mash-grain and all-in-one feeding methods. With the mash-grain system a free choice was provided of a 20% protein developing mash composed of grain from eastern corn, western corn or speltz, along with whole grain from each source for respective lots. The all-in-one feeds utilized grain from each source and protein levels were varied to provide a total of 19, 17 and 15% at ages 8-14, 14-20 and 20-24 weeks, respectively. The growth rates or feed conversion of turkeys receiving eastern or western corn were similar, whereas those receiving speltz grew slower and took more feed to produce a pound of gain.

In comparing the mash-grain and all-in-one methods of feeding, it was

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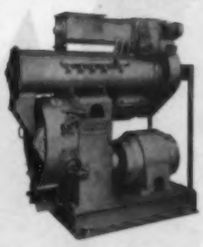

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TABLE 5. Protein Levels in Turkey Starting Diets (OSC, 1956)

Protein* levels 0-2 wk.	2-8 wk.	Weight, 8 wk. gm.	Feed/gain lb.
32	32	1808	2.31
32	28	1833	2.22
32	24	1783	2.22
32	20	1582	2.37
32	20 + M-L	1779	2.16
28	28	1946	2.38
28	24	1738	2.33
28	20	1534	2.28
28	20 + M-L	1667	2.33
24	24	1831	2.31
24	20	1522	2.39
24	20 + M-L	1687	2.22

*All 7.5% fish, 5% meat, 5% whey and 2.5% alfalfa; 39 BBB poults per lot.

TABLE 6. Protein Levels in Turkey Starting Diets (OSC, 1957)

Protein* levels 0-2 wk.	2-8 wk.	Weight, 8 wk. gm.	Feed/gain lb.
32	32	1854	1.70
32	28	1855	1.53
28	28	1830	1.70
28	24	1778	1.99
28	20	1402	2.24
28	20 + M-L	1776	1.89
24	24	1617	2.03
24	20	1254	2.19
24	20 + M-L	1698	1.92
20	20	1066	2.23
20	20 + M-L	1456	1.92
20 + M-L	20 + M-L	1640	1.96

*All 7.5% fish, 5% meat, 5% whey and 2.5% alfalfa; 41 BBB poults per lot.

observed that the average weight of males on the latter was a pound lower at 24 weeks and there was no difference for females. The explanation is probably due to a higher requirement of protein for males than was provided by the all-in-one rations. The males under a free choice system were able to meet protein needs by level of grain consumed. With this method of feeding, the corn groups consumed approximately 30% of their total feed as whole grain while speltz groups ate 50% whole grain.

Protein levels and sources in turkey starting rations. The attempts to improve turkey starting rations through use of high energy feeds have not been as rapid or spectacular as use of feeds of this type for chickens. A part of the difficulty lies in the higher protein requirement of poults and loss in energy in replacing corn with protein concentrates. Baldini, Rosenburg and Waddell (1954) found a corn-soybean ration could be improved by adding synthetic amino acids methionine and lysine so that equal growth was obtained with 28 and 20% protein diets. Reducing the protein level provided an opportunity to increase energy.

The question was raised through their work whether or not rations with more of the common sources of protein might be used with some supplementation from synthetic amino acids. The question of use of high protein pre-starter rations also needed clarification.

In a series of five feeding trials, different levels of protein, synthetic amino acid supplements and protein sources were used for poults from day old to eight weeks of age. In the first two trials, crude protein levels from 20 to 32% were used with changing of protein levels on some groups following the first two-week feeding period. Only the corn and soybean meal were varied in the rations along with minor adjustments to keep mineral and vitamin content at approximately the same levels. Synthetic methionine was added at a level of .14% and lysine at .28% to the 20% protein starter to provide these amino acids in line with N.R.C. requirements for poults (1954). The higher protein rations were supplemented with the amino acids in the same amounts as the 20% ration.

Results are given in Tables 5 and 6 and show that the 28% protein diet was adequate to support good growth in comparison to the 32% protein diet. Since energy variations were not included within the scope of these trials, it is not established whether increased energy might improve the 32% diet. Metabolizable energies for diets were calculated as 1170, 1224, 1258 and 1312 calories in decreasing order for protein in diets. Use of 20 and 24% protein in diets resulted in lower growth which could be partly compensated by adding synthetic methionine and lysine. Adding the amino acids to the 28 and 32% diets was not tried since it had been previously reported there was no benefit (Harper, 1955).

The third trial consisted of only the 20 and 28% protein rations with variation in protein levels following the first two weeks of feeding and addition of synthetic methionine, lysine and glycine, singly or in combination. Table 7 gives results showing supplementation of the 20% diet with all three amino acids was inadequate for maximum growth. Methionine appears as the first limiting amino acid and lysine second in these comparisons. No response was obtained for glycine.

TABLE 7. Protein Levels in Turkey Starting Diets (OSC, 1957)

Protein* levels 0-2 wk.	2-8 wk.	Wt. 8 wk. gm.	Feed/ gain lb.
28	28	1859	1.93
28	20	1628	2.26
28	20 + M-L-G	1680	2.10
20	20	1363	2.20
20 + M	20 + M	1550	2.12
20 + L	20 + L	1429	2.15
20 + G	20 + G	1335	2.11
20 + M-L	20 + M-L	1457	2.05
20 + L-G	20 + L-G	1457	2.09
20 + M-G	20 + M-G	1420	2.08
20 + M-L-G	20 + M-L-G	1442	2.14
20 + MHA-L-G	20 + MHA-L-G	1596	1.99

*All 7.5% fish, 5% meat, 5% fish and 2.5% alfalfa; 40 BB poults per lot.

Further study of natural protein sources was made by comparing growth rate of poults fed the 28 and 20% protein diets to a 28% diet adjusted to contain the equivalent ratio

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of fish meal, meat meal and whey as the low protein starter. Additional rations included 28% protein starters with adjuster levels of protein from purified Drackett soybean meal and alfalfa meal or soybean meal as the only protein supplement. Growth rate was lowest on the 20% ration and was exceeded by poults fed the 28% protein corn-soybean diet. The combination of increased animal proteins above amounts contained in the 20 or 28% rations produced the best rate of growth, as seen in Table 8.

In the final trial of the series completed thus far, examination was turned to the individual animal protein sources. Fish meal, meat meal and whey were added separately to rations at levels of 7.5, 5.0 and 5.0%, respectively (the same amounts as combined in the 28% ration) and adjusted to a total of 28% protein with soybean meal. Results are shown in Table 9. It will be noted that growth response of individual protein sources were not equal to that of the combination. Further, fish meal, meat meal and whey are in decreasing order for content of growth promoting nutrients at levels used.

Within the series of trials conducted on protein levels and sources for poult growth, it can be concluded a 28% protein starter gives optimum growth, within limitations imposed in these trials by energy, as compared to 20, 24 and 32% protein starters, all containing equal fish meal, meat meal and whey protein. Supplementation of the 20% starter ration with methionine and lysine increased growth rate but not equal to a unsupplemented 28% protein ration. Some additional nutrient(s) are thus shown to be lacking in the low protein diets.

Internal hemorrhages in growing turkeys. Within the past five or six years an internal hemorrhage disease has been reported in turkey flocks in the U.S., Canada and England. While the condition is rather sporadic, the death loss has in some flocks resulted in considerable economic loss. Rapidly growing birds between 10 and 20 weeks of age are generally affected and loss is mainly confined to males. Experimental work at Oregon and other stations has been directed at finding a possible relationship to nutrition or toxic properties in feed ingredients commonly used.

One of the earliest trials was conducted at the Oregon station to determine if vitamin K might be involved. A ration was formulated to contain a low level of vitamin K from natural sources. The basal diet was varied by adding vitamin K at two levels and alfalfa meal, both in the presence and absence of a thyroid stimulating product (Protamone) as a stress agent.

The blood clotting time was prolonged in the poults receiving low levels of vitamin K in their feeds and markedly so where the stress agent was included. While subcutaneous hemorrhages typical of a vitamin K deficiency were produced in the series of diets with Protamone, there were no birds dying from internal hemorrhages or aortic aneurism.

This and other experiments led to the conclusion that low level of vitamin K in the diet was not a factor related to the disease. Identification of a substance in sweet pea seed (Beta-amino-propionitrile) by Strong at Wisconsin and availability of the synthetic material from the Abbott Laboratories enabled further investigation of the problem. A number of trials were conducted in the past four

(Turn to page 34)

TABLE 8. Protein Levels in Turkey Starting Diets (OSC, 1957)

Ingredients	Protein level %	Weight 8 wk. gm.	Feed/ gain lb.
Control*	28	1453	2.30
as 1 less soy to	20	1035	2.27
Fish, meat, whey in ratio to 20% diet. as 2 + Drackett	28	1540	2.19
Soy to	28	1438	2.18
Soy only	28	1206	2.46
Alfalfa in ratio to 20% diet	28	1475	2.25

*35% soy, 7.5% fish, 5% meat, 5% whey and 2.5% alfalfa; duplicate lots 30 BSW.

TABLE 9. Protein Levels and Sources in Turkey Starting Diets (OSC, 1958)

Ingredient	Crude protein %	Weight 8 wk. gm.	Feed/ gain lb.
Control*	28	1771	2.09
as 1 less			
Soy to	20	1189	2.38
Soy only	28	1542	2.33
Soy + fish	28	1694	2.04
Soy + meat	28	1602	2.13
Soy + whey	28	1572	2.45

*35% soy, 7.5% fish, 5% meat, 5% whey and 2.5% alfalfa; duplicate lots 30 x-white poults.

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Maybe you've been thinking about a new mill—a new addition—or a new machine. Then again, maybe you've just been wondering how you can get MORE from your present space.

Whatever it is, we would like to talk to you about it.

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We would like to talk to you about planning.
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Users report on:

Aureomycin for

"50,000 extra eggs per year from our 5,000 bird flock"

says O. Watson Search of Cream Ridge, N. J.

"The introduction of AUREOMYCIN® into our layer mash 2 years ago has resulted in at least 50,000 extra eggs (139 cases) per year from our 5,000 bird flock. In addition, AUREOMYCIN has reduced our mortality losses by at least 25% and helped cure our flock of CRD.

"After trying different levels of AUREOMYCIN in feed, we've settled on using it continuously at the rate of 30 grams a ton of feed. When CRD appears, we raise it to 60 grams a ton. The cost is low and our over-all egg income has increased at least 5%.

"It was our feed store dealer who first recommended AUREOMYCIN to us. He reported that the farmers in the neighborhood, who were using it, were getting good results . . . more eggs, healthier birds, less mortality."

You can increase your egg income just as Mr. Search has. Ask your feed dealer or feed manufacturer for feeds containing AUREOMYCIN. Feed continuously! American Cyanamid Company, Agricultural Division, New York 20, New York.

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CYANAMID
AUREOMYCIN
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Says Edward J. Bows

"$2,000 e

"When we started feeding AU
layers 18 months ago, I notic
were getting more eggs. Th
had a better shell texture.
"Hatchability of the eggs,
stock, has been stepped up by
lag hens have been producing
"We average 270 dozen egg
costs by 1½¢ per dozen egg

®AUREOMYCIN is American Cya

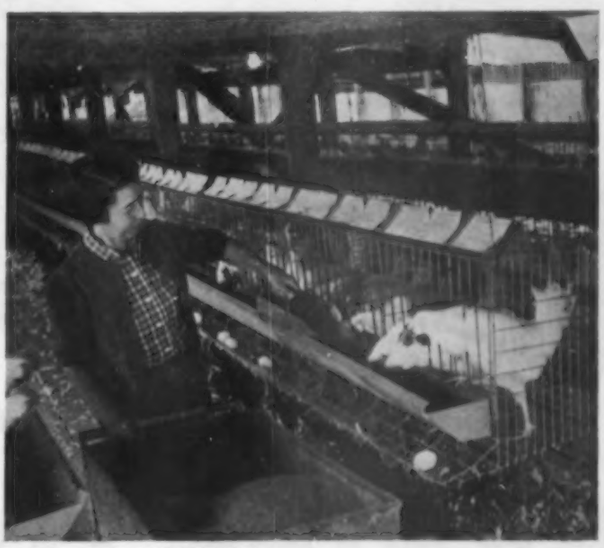
more egg profits

"Better health . . . more eggs . . . fewer culls . . . more profits." These are the featured benefits mentioned over and over again in the reports from flock owners using formula feeds containing AUREOMYCIN.®

Egg producers throughout the country are reading these success stories *now* — and will continue to read them all through the year — in national, sectional and local farm publications.

These advertisements are designed to help flock owners know more about the outstanding antibiotic for layer and breeder feeds — and to help you sell more formula feed. Each advertisement reminds consumers to buy formula feeds from his feed manufacturer or feed dealer. And each advertisement prominently displays, in the logotype, the words "formula feeds."

If you are not making layer or breeder feeds containing AUREOMYCIN, plan to do so. Increasing consumer acceptance of such feeds is your assurance of higher sales volume. American Cyanamid Company, Agricultural Division, New York 20, N. Y.



Says Mrs. Worden Dilley of Sebastopol, California:

"Increased daily average production from 60% to 70%–with Aureomycin"

"By using AUREOMYCIN® continuously as a preventative in feed," says Mrs. Dilley, "we are not only insuring against possible losses from disease but realizing the maximum potential of our hens.

"AUREOMYCIN has helped us increase daily average lay from 60% to 70% —at a cost of about 1½¢ extra per hen every six weeks. If we got only one additional egg per hen during the six weeks' period that alone would pay for the cost of AUREOMYCIN, and, of course, we are getting far more production than that!

"Our usage of AUREOMYCIN is more than paying its way in terms of better flock health and in higher egg production."

Ask your feed manufacturer or feed dealer for layer feeds containing AUREOMYCIN. Keep flocks producing at their maximum peak throughout the year. American Cyanamid Company, Agricultural Division, New York 20, New York.

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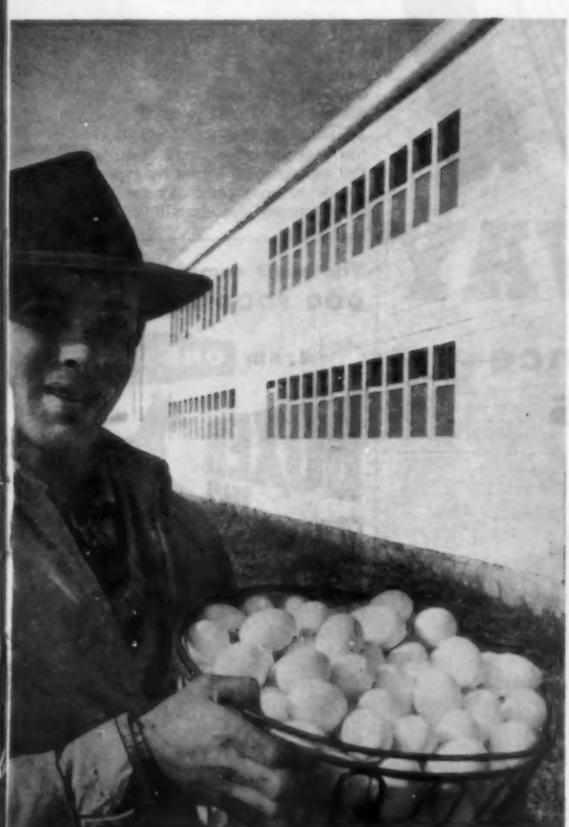

r of Lititz, Pa.:

xtra income yearly from my 4,000 layers"

OMYCIN® to our 4,000 within a week that we eggs were larger and

roduced by our breeder % and the regular lay- 6.2% AA quality eggs. a day and have cut feed by using AUREOMYCIN.

"I estimate that, with AUREOMYCIN, we must be getting an extra 60 cents per hen per year in increased egg sales because of higher quality and production. That gives me an added income of about $2,000 a year."

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TABLE 10. Effect of BAPN and DOCA Plus Vitamins on Internal Hemorrhages in BSW Turkeys (OSC, 1957)

Additions to Reg. Starter	Weight, 5 wk. gm.	Int. Hem. No.	Crooked toes and hocks No.	Aortic Lesions Examined—With Lesions No.	No.
	596 (0)	0	0	2	0
.04% BAPN	552 (0)	0	9	3	3
.04% BAPN All Vitamins	566 (1)	1	6	4	3
.04% BAPN ETOH	571 (4)	4	6	7	7
.04% BAPN Biotin	571 (3)	3	7	6	3
.04% BAPN Folacin	591 (3)	3	7	6	4
.04% BAPN Menadione	492 (3)	3	4	7	5
.04% BAPN PABA	554 (3)	3	1	6	6
3 mg. DOCA 2x wk.	545 (0)	0	1	3	2
.04% BAPN + 3 mg. DOCA 2x wk.	579 (4)	4	1	6	3

Ten poults per lot. ( ) Mortality.

years. A typical example is given in Table 10.

When poults received .04% BAPN in a regular starting feed internal hemorrhages were produced typical of those in turkeys dying in commercial flocks from aortic aneurism. The addition of all vitamins, some singly and in combination, failed to prevent losses in the presence of BAPN. Cortisone (Desoxycorticosterone) was found in these trials to be associated in production of crooked toes and hocks. However, it did not appear related to the production of aortic aneurism. In other trials no evidence was found that the addition of a complete mineral mixture to the diet would prevent internal hemorrhages or the crooked toe and hock problem induced by BAPN.

A report by McSherry, Ferguson and Ballantyne (1954) noted there is a strong association between rate of growth and protein level to incidence of the disease. More recently additional evidence has been presented on this point by Pritchard, Henderson and Beall (1958) in the observation that aortic aneurism could be produced on high protein-high fat rations in combination but not when fed singly. Further, in suspecting soybean meal as a possible carrier of BAPN, they were unable to find an association between the disease and level of soybean meal fed.

In view of the experimental work on the problem, both at Oregon and elsewhere, it appears that vitamin K is not directly involved in aortic aneurisms. However, typical cases like that observed in commercial flocks may be produced by a toxic material (BAPN) or rations with a combination of high protein and high fat.

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Automatic Feeding Setup Exhibited

URBANA, ILL.—A single full-sized automatic feeding setup ground, mixed and delivered three different livestock rations by way of a pressure pneumatic conveyor at the recent Farm and Home Festival at the University of Illinois.

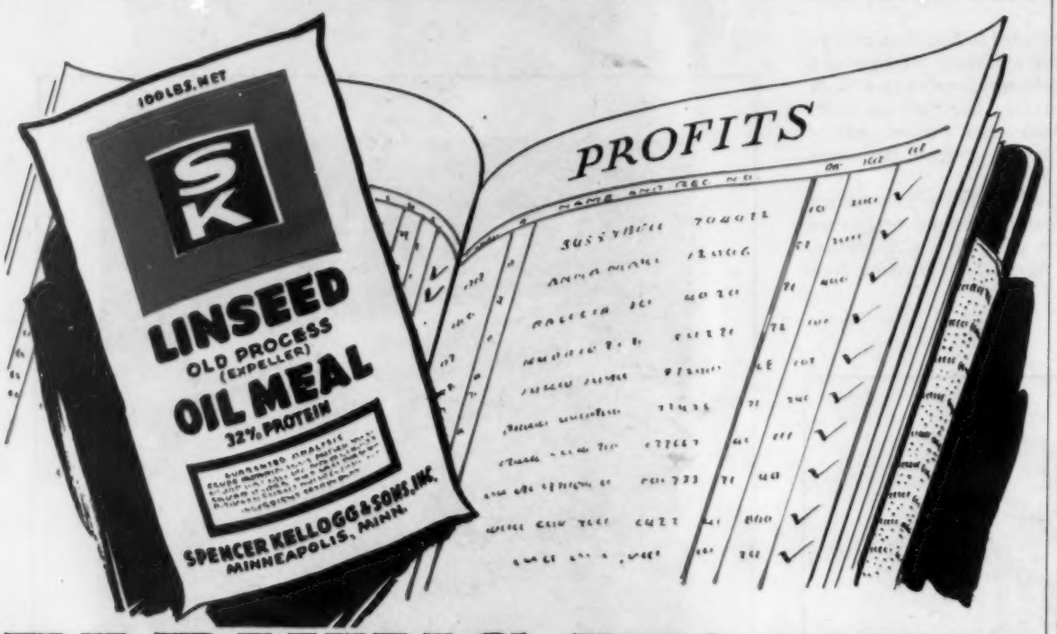
Such a system could furnish rations for cattle, hogs and chickens, all at the touch of a button, it was noted by H. B. Puckett, agricultural engineer in charge of the display.

Mr. Puckett commented that use of one automatic feeding system to feed several kinds of livestock will help to make the automatic equipment pay its way on more Illinois farms, and pointed out that an automatic feed-handling system can run 24 hours a day if necessary to feed more livestock.

He said that the high-pressure pneumatic conveyor exhibited at the Farm and Home Festival is especially suited for carrying ground feed to several different locations. The system uses air pressure to force ground feed through metal tubing no bigger around than a 50¢ piece.

"With this system the tubing can bend around corners or run underground or overhead to put ground feed where it is needed. A simple shutoff valve sends the feed to the desired place," Mr. Puckett explained.

"The pneumatic conveyor is still too expensive for farm installations. But agricultural engineers expect that the device may some day see wide use in automatic feed-handling design."



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CORN FLAKES
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EXPELLER SOY BEAN MEAL
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Nowhere else can you secure such a major part of your dog food ingredients. By combining your ingredient purchases in cars, mixed cars or LCL you are assured of freshness, and better inventory control with lower inventory investment. BOXER ingredients are manufactured by us specially for dogs—they are "prime" products, and not "by-products." Write for current prices and literature.

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FEED CONTROL COMMENT

By BRUCE POUNDSTONE
Secretary, Association of American Feed Control Officials
Kentucky Agricultural Experiment Station, Lexington

Drug Level Changes And Re-Registration

A change in the drug used in a feed is sometimes requested during a registration year. The question arises —does this require re-registering the feed? The answer in most states is, yes, re-registration is required. Even a change in the level of a drug may require re-registration, especially if the purpose of the feed is modified by such change.

Ingredients Now Require Registration

A little-noticed change in the 1959 Publication of the Association of American Feed Control Officials is the heading on page 23 which reads "Definitions of Feeds." In the 1958 book this same page was headed "Definitions of Feeding Stuffs." This change in terms was long over-due.

It is becoming more and more apparent that what were formerly considered ingredients are now classified in a legal sense as a feed. Farmers have always bought some of these products as straight feed products, but with custom mixing many of the items formerly sold only to mixed feed manufacturers now appear on a farmer's sales slip as part of a custom mix and the custom operator has made a sale of this "feed."

What were looked upon as "feed ingredients" and considered for sale only to manufacturers now become part of the marketing process and subject to the farmer's selection as he makes his purchases. One exception to this is certain drugs and antibiotics that must be carefully accounted for.

This has raised a question as to the registration of feed ingredients. More and more states are requiring registration of all such products since they may find their way into a custom mixed feed. The philosophy behind the custom mixed idea is that the farmer selects the ingredients, purchases same, and then the mixer provides and sells the additional service of mixing what have become farmer-owned items.

The simplest solution to this question is to have all ingredients registered by the manufacturer.

Some manufacturers have customarily done business only with registered feed operators. In effect, this means the statement "for use in registered feeds only" no longer has any meaning and for practical purposes should be removed from ingredient tags.

Label Printed on Bags Or on Tags or Both

Not many years ago all feed containers were labeled by attaching a tag to each bag. With burlap and cloth there was little chance of printing the label on the bag.

With paper, manufacturers are now printing label information directly on the bag. The habit of or convenience of printing information on a tag, however, results in continued use of tags to give "essential" information: Name of product, manufacturer, chemical guarantee, ingredient statement and net weight.

It is not unusual to find feed in a dealer's warehouse labeled both ways. Some feed will have only a tag. Some may have labeling printed entirely on the bag. Some may have the name of the manufacturer and the name of the feed on the bag, but other information on the tag.

Points that should be carefully observed in this connection are:

1. The complete label may be printed directly on the bag. It is preferable to have the chemical guarantee, the ingredient statement, the name of the manufacturer and the name of the feed all in one place. This may correspond to a space not much larger than a tag or approach the entire side of a bag.

2. The printing on the bag may carry only the manufacturer's name and address, or the manufacturer's emblem or trade mark and all of the labeling information appear on a tag attached. This has the advantage of permitting changes in guarantees without hving to reprint on the bag. Bags printed in this way can be used for several kinds of feed.

3. If any of the "essential" information is printed directly on the bag all of it should be there. Likewise, if a tag is attached the tag should be complete in all respects. In no case should part of the "essential" information appear on the bag and part of the information on the tag. This is particularly true with respect to drug labeling and feeding directions. If feeding directions are required, these should appear along with the "essential" information wherever this appears and always where it appears. The same is true with information with regard to drug content and any special features of such labeling.

4. If labeling printed on the bag supplements or duplicates printing on a tag, the statements should be in agreement. If complete labeling information is printed directly and adequately on the bag, there is no necessity for a tag but there is no objection to having one provided the information thereon is also complete.

5. A manufacturer may try to emphasize some particular feature of his product by attaching a tag. In such instances the complete label information may be printed on the bag and the tag will contain some statement emphasizing a quality of the feed, an ingredient or similar information. This is to be discouraged. The purchaser should be able to depend upon one place to find all of the information he needs to know about a given product. This does not mean it cannot be repeated but, if it is repeated, it must be repeated completely.

Buffalo Flour Club Reelects Officers

BUFFALO, N.Y.—All officers were reelected at the recent annual meeting of the Buffalo Flour Club.

Reelected were William L. Rogers, Standard Milling Co., president; William P. Thornton, Ralston Purina Co., vice president, and James E. O'Connell, Standard Milling Co., secretary-treasurer.

Elected to two-year terms as members of the executive committee were Willard H. Meinecke, General Mills, Inc., and John H. Young, Eastern States Farmers Exchange.

Hold-over members of the executive committee are Roger C. Greene, American Elevator & Grain Division, Russell-Miller Milling Co.; F. C. Greutker, Greutker, Inc., and Theodore A. Wagner, Wagner Grain Division, the Frauenheim Corp.

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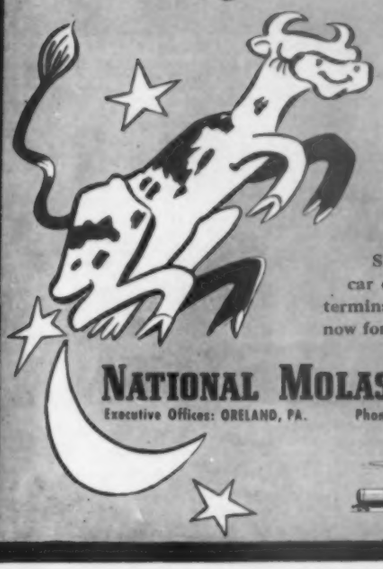

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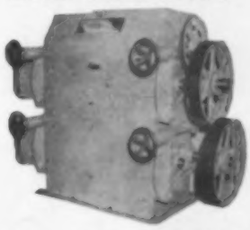

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The Ross Heavy Duty 2 and 3 Pair High Heavy Duty Soybean Mill or Cracking Mill is a specially designed unit for the cutting and processing of soybeans and other hard grains. Each unit is expressly designed for the heavy duty 24-hour service requirements necessary to process soybeans. Equipped with special alloy Turn-Tuff rolls of highest quality, you are assured of maximum service with the special Turner Rolls of super hard quality. Heavy Duty ⅛" steel seamless welded housing with oversize roller bearings and special solid corrugated feeder rolls of semi steel, all stainless steel gates, heavy plated fittings, heavy duty enclosed chain differential drives with positive roll tramming, quick throw-out levers and shear washer protection for rolls. A special soybean corrugation is usually used on these mills available in reduction multiples of 4-5 to 12-14 corrugations per inch, with differentials to suit.
All Ross units are furnished with highest grade deep chill, Turn-Tuff chilled iron rolls by Turner, World's largest roll makers. Tough hard biting corrugations for years of service.

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Determination of Least-Cost Formulas with Electronics

"Ingredients will be sold, or not sold, on calculations by electronic computers. Nutritionists, guided by results, will determine whether each is economically priced."

By Hobart R. Halloran
Halloran Research Farm, Modesto, Cal.

EDITOR'S NOTE: The accompanying article, which is from an address given by the author at the American Dehydrators Assn. convention, helps to show how computers are used in formulating feeds. The article illustrates particularly the process of ingredient substitution analysis, which is used to guide feed procurement groups in ingredient purchasing. While the article deals primarily with dehydrated alfalfa, it serves as an example for all feed ingredients. Mr. Halloran, a feed consultant, is also associated with Electronic Formulation Service, Livermore, Cal., firm which made the electronic calculations for this article.

v v

The future of dehydrated alfalfa meal depends on electronics. Dehy, along with other ingredients, will be sold, or not sold, on calculations by electronic computers. Nutritionists, guided by the results, will decide whether each feed ingredient is economically priced.

I plan to look into the crystal ball in this article to give you an indication of the usage of dehydrated alfalfa meal at various price levels. The dehydrating industry has been plagued with mounting costs of operation and raw materials, with little, if any, increase in selling price. The industry has done an excellent job of reducing costs and now needs to look ahead.

Electronic formulation of feeds is based on nutritionists preparing nutrient specifications and ingredient restrictions for each type of formula. This information and the current prices are placed in the machine. In a few minutes, the computer comes up with the least-cost formula based upon these specifications and restrictions.

Once a formula is set up, the current ingredient prices can be punched on cards and put into the machine for a quick re-evaluation of the formula. The computer does in a few minutes what it would take several days or weeks to do on a hand calculator. It will not only do the work quicker, but more accurately. This type of calculation is called linear programming. IBM computers are used extensively for this work. Other types of machines are available also.

These computers can be used to guide feed procurement groups in their ingredient purchasing. This type of evaluation is called ingredient substitution analysis. A particular ingredient is placed in the machine at various prices. In order to bring you the full impact of this new development, we have put dehydrated alfalfa meal into an IBM computer at various price levels. The computing work on this project was done by Electronic Formulation Service of Livermore, Cal. Even though dehy and prices were the primary variables, a tremendous amount of economically important information resulted. In this article, I'll cover only the information affecting dehy.

We have two basic formulas, one a laying ration and the other a chicken breeding ration. Table 1 shows the prices of ingredients used. Approximate Texas prices are in the first column and Midwest prices are in the second column. The prices are as of November, 1958.

Table 2 shows the ingredient restrictions in the laying rations. No restriction on the amount of dehydrated alfalfa meal was included.

Table 3 has the nutrient specifications for the laying rations.

Dehydrated alfalfa meal was put into the machine at levels ranging from $0 ton up to $110 ton. Table 4 gives the amounts of dehydrated al-

TABLE 1. Prices of Ingredients
(Dollars per ton)

Ingredient	Texas prices	Midwest prices
Barley	$49	$49
Corn	49	40
Milo	44	46
Mill run	48	55
Fish meal, 60%	138	138
Meat meal, 55%	126	126
Soybean meal	70	60
Egg-tested cottonseed meal	64	64
Fat	160	150

TABLE 2. Laying Ration Ingredient Restrictions
(Lb. per ton)

Ingredient	Type	Lb.
Corn	Min.	200
Mill run	Max.	200
Fish meal	Min.	25
Molasses	Max.	60
Condensed fish solubles	Min.	20
Dried whey	Max.	50
Fat	Min.	15
Salt	Exact	5

FIGURE 1. Relative amounts of dehydrated alfalfa meal used in layer ration. (Basis Texas prices.)

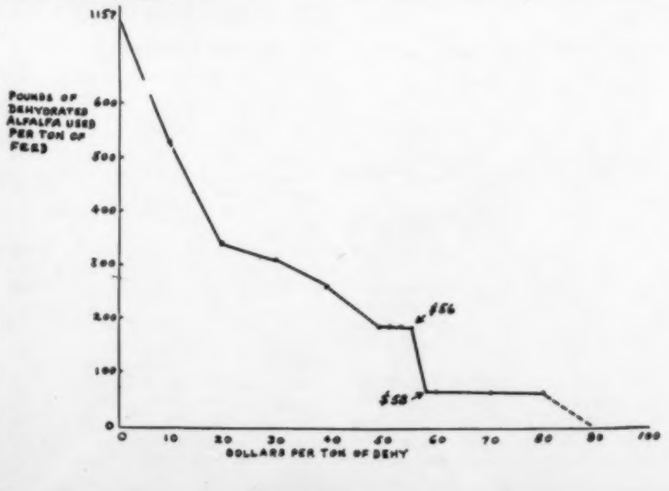

TABLE 3. Laying Ration

Nutrient Specifications

	Type	Amount
Metabolizable energy ..	Min.	1190 cal./lb.
Protein	Exact	15%

Plus Specifications for

Calcium	Cystine	Niacin
Available phosphorus	Tryptophan	Pantothenic acid
Arginine	Vitamin A	Vitamin B_{12}
Lysine	Vitamin D	Vitamin K
Methionine	Vitamin E	
	Riboflavin	

TABLE 4. Amount of Dehydrated Alfalfa Meal the Computer Includes in Layer Ration

(Texas Ingredient Prices)

Price of dehy per ton	Lb. dehy per ton
$ 0	1,157
10	531
30	314
40	264
50	193
56	193
58	70
80	70
90	0

TABLE 5. Amount of Dehydrated Alfalfa Meal the Computer Includes in Layer Ration

(Midwest Ingredient Prices)

Price of dehy per ton	Lb. dehy per ton
$ 0	1,157
30	348
46	214
48	70
70	70
80	27
90	0

TABLE 6. Effect of Dehy Price on Feed Ingredient Cost

Price of dehy alfalfa	——Feed ingredient cost—— With Texas ingredient prices	With Midwest ingredient prices
$30	Minus $2.58	Minus $2.26
$50	Base price	Base price
$70	Plus $1.14	Plus $0.70

TABLE 7. Breeder Ration Ingredient Restrictions

(Lb. per ton)

Ingredient	Type	lb.
Mill run	Max.	200
Corn	Min.	300
Fish meal, 60%	Min.	50
Condensed fish solubles	Min.	40
Whey	Min.	25
Egg-tested cottonseed meal .	Max.	200
Salt	Exact	10

falfa meal formulated for some of the dehy price levels (basis Texas prices.) At no cost for dehy, 1,157 lb. per ton was used. The amount quickly drops to 531 lb. when the price is $10 ton. Then there is a slow decline until a definite break occurs between $56 and $58 ton. Evidently the computer formulates 70 lb. of dehy primarily to supply vitamin A. Someplace between $80 and $90 ton, vitamin A itself becomes more economical. Under this particular set of price conditions, approximately 2½ times as much alfalfa is used at $56 than is used at $58. The effect on ingredient procurement is immediately evident.

Figure 1 demonstrates this graphically.

Table 5 is the same story using the Midwest ingredient prices. Here the breaking point is between $46 and $48 ton. However, at $70 ton, 70 lb. of dehy is still used. At $80 ton 27 lb. is used. Since the computer is working toward a least-cost formula, the ingredient cost of the feed actually increases as the dehy goes up in price.

Table 6 shows the effect on the overall ingredient prices of the feed. Here we will arbitrarily take the price of the feed with $50 alfalfa as the base. Then with $30 dehy, the feed ingredient cost is $2.58 ton less. With $70 alfalfa, the feed ingredient cost is $1.14 more. The above results are with the Texas ingredient prices.

With the Midwest ingredient prices, the $30 dehy results in a decreased ingredient cost of $2.26 ton. With a $70 price, an increased ingredient cost of 70¢ ton results.

The second formula tried was a chicken breeder ration. The ingredient restrictions are given in Table 7. Here we included egg-tested cottonseed meal as a potential ingredient.

Table 8 reviews the nutrient specifications. The additional specification included here is xanthophyll. The amount of pigment is specified in order to maintain a fairly uniform color of the hatched chicks.

Table 9 shows the amount of dehydrated alfalfa meal included in this breeder ration. Using the Texas prices, the large drop at a sensible price level is between $50 and $60 ton. Above this price, the dehy is included in the formula primarily because of its xanthophyll content. The other xanthophyll source was corn, which was relatively expensive. At $110, the alfalfa dropped from 112 to 100 lb. and the machine started to include 125 lb. of corn. It is difficult to estimate where the next drop in the amount of alfalfa would be. We didn't go higher because we felt that this group would be satisfied with a selling price of $120 ton.

Table 10 gives the differences in feed ingredient costs with changes in dehy prices. The breeder ration goes up approximately $1 ton with an increase of $20 in the price of dehydrated alfalfa meal.

I have heard so much regarding the profits in the dehydrated alfalfa meal business that I was interested as to the effect of dehydrators acting as philanthropists. Therefore, we figured what the formulated amount of alfalfa would be if the dehydrator paid the freight and sent along a $50 bill with each ton of dehy.

The effect of this insanity is shown in Table 11. The amount of dehydrated alfalfa meal is only 59 lb. more if the dehydrator pays them to take it away than if it doesn't cost anything at all. One interesting fact which bears more investigation is why the soybean oil meal is omitted in this case.

There are many important ramifications on the use of computers and their effect on the ingredient prices. Table 12 gives an indication of these. Here are the price ranges of the dehy

TABLE 8. Breeder Ration

Nutrient Specifications

	Type	Amount
Metabolizable energy ..	Max.	1200 cal./lb.
Protein	Min.	15.5%

Plus Specifications for

Calcium	Tryptophan	Choline
Available phosphorus	Xanthophyll	Niacin
Arginine	Vitamin A	Pantothenic acid
Lysine	Vitamin D	Riboflavin
Methionine	Vitamin E	
Cystine	Vitamin K	
	Vitamin B_{12}	

TABLE 9. Amount of Dehydrated Alfalfa Meal the Computer Includes in Breeder Ration

Price of dehy per ton	——Dehy, lb./ton—— Texas prices	Midwest prices
0	1,142	1,116
10	378	309
40	257	306
50	226	100
60	112	100
120	100	21

TABLE 10. Effect of Dehy Price on Feed Ingredient Cost

Price of dehy alfalfa	——Dollars per ton—— With Texas ingredient prices	With Midwest ingredient prices
$30	Minus $2.55	Minus $2.80
$50	Base price	Base price
$70	Plus $1.14	Plus $1

TABLE 11. Effect of "Paying to Take It Away"

(Layer Ration, Midwest Prices)

	Plus $50 per ton	No cost per ton	Minus $50 per ton
Dehydrated alfalfa meal	70	1,157	1,216
Corn	1,100	200	200
Fat	15	298	299
Soybean oil meal.	371	112	0

Plus other protein ingredients, minerals, vitamins and unknown factor sources.

TABLE 12. Prices of Dehydrated Alfalfa When Certain Ingredients Are "Picked-Up" by a Laying Ration by the Computer

	Price/ton of dehydrated alfalfa Texas prices	Midwest prices
Methionine	$20-30	$80-90
Vitamin A	80-90	70-80
Vitamin E	58-60	46-48
Vitamin K	80-90	70-80
Riboflavin	10-20	0-10
Vitamin B_{12}	0-10	0-10
Molasses	40-50	30-40

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EASTERN CONVENTION SPEAKERS—Three of the speakers scheduled for the annual convention of the Eastern Federation of Feed Merchants, Inc., to be held June 8-9 at Pocono Manor, Pa., are shown here. Left to right, they are: Dr. Paul S. Nadler, assistant professor of business administration, Rutgers University, New Brunswick, N.J., who will speak on "General U.S. Economic Outlook and Summary of What's Ahead"; Dr. Fred W. Hill, nutritionist, Cornell University, who will speak on "New Ideas in the Feeding of Replacement Pullets and Laying Hens," and Thomas H. Richardson, president, Eastern League of Professional Baseball Clubs, who will be the Salesmen's Breakfast speaker with a message on "Smile and Sell."

when certain ingredients are picked up by the computer in a laying formula. For example, methionine is used with the Texas prices some place between $20 and $30 ton of dehy. But there is no methionine included using the Midwest prices until the dehy gets up to $80 to $90.

The important part that synthetic vitamins play in supplementing alfalfa meal and other ingredients is also indicated in this last table. They have a definite place in supplementing feeds economically. As an example, the synthetic riboflavin is a terrific boon to the poultryman because the cost of dried milk products is too high to economically supply this vitamin. The cost is now approximately 4¢ gm. A laying ration can then be adequately fortified with riboflavin for 8¢ ton. The electronic computer can take advantage of the natural vitamins in high-quality dehy and then make the final supplementation with purified and synthetic substances.

There is increasing interest in the use of dehydrated alfalfa meal in low-energy and high-fiber rations for growing replacement pullets. The most outstanding results with low-energy rations are with meat-type pullets. There are also benefits with Leghorns. These are, primarily: delayed maturity, resulting in larger eggs when the birds start producing and reduction in cannibalism. Dehydrated alfalfa meal plays an important part in this type of feeding because of its balance of amino acids and other nutrients.

Metabolizable Energy

Further investigation on the metabolizable energy content of dehy is important. It is essential that all the nutrient information possible be available to use in electronic computers. The more nutrients listed, the better is the chance of maintaining a higher level of the product in machine-calculated formulas.

Looking into the future on the basis of recent nutritional developments, the values of dehydrated alfalfa meal may possibly be increased through the use of enzymes. Starch-splitting enzymes are now being included to improve the availability of the energy in barley and other grains. If cellulose-splitting enzymes come on the market, the available energy of fibrous vegetable material will be made more available to single-stomach animals.

The dehydrated alfalfa meal industry has to look forward. Services must be developed. Certainly feed manufacturers cannot utilize large quantities of dehydrated alfalfa meal in many parts of the country because of the often relatively high price.

It is essential that the dehydrators stay in business because of the importance of this product for feeds. Often, however, it is going to be priced out of the market. Therefore, dehydrators need to develop other outlets and utilize the meal in other products. One example of this is the use of the dehy pellets for ruminants. However, turkey and chicken rations use a large proportion of the total dehy production. This outlet should be encouraged through the development of more information on the nutritional values and usages of the product.

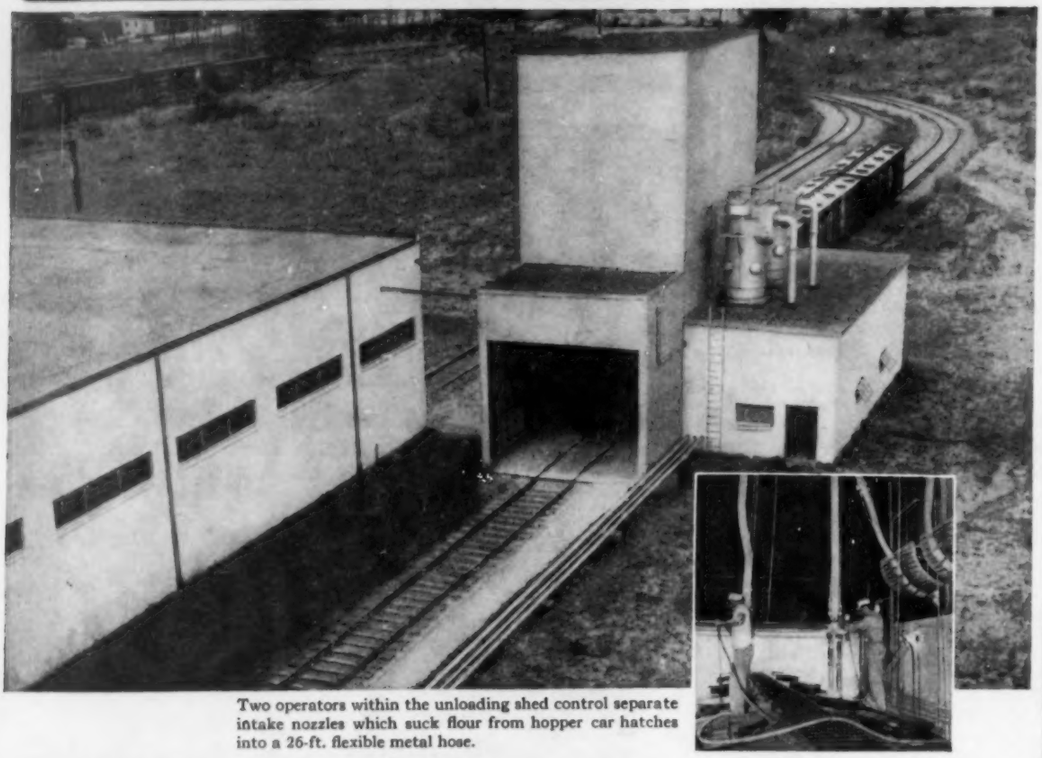
In summary, careful study has to be given to the development of services, the improvement of products, and the full utilization of data from electronic computers.

NEW FEED, GRAIN FIRMS

MANDAN, N.D. — Articles of incorporation have been filed by the Midwest Feed & Pelleting Co. at Mandan. The firm was capitalized at $50,000. Incorporators are listed as Leland C. Ulmer, Bruce B. Bair, Jr., and P. L. Biglow, Mandan. Also recently incorporated is the Lucca (S.D.) Grain Co. Incorporators are Fred W. and Helen Eisenhardt, Kelso, S.D., and Raymond J. and Margaret Lindeman, Elliott, S.D.

The Arithmetic of Materials Handling

Visit Our Booth 172-173 at the National Feed Show Chicago, May 11, 12, 13



Two operators within the unloading shed control separate intake nozzles which suck flour from hopper car hatches into a 26-ft. flexible metal hose.

Flexibility of FULLER Pneumatic Conveying Systems Makes Problem Plant Site Practical For General Mills

The proposed site of a new General Mills flour blending and packaging plant in Louisville, Ky. seemed impractical to mill engineers because of the site's long, narrow shape. Flour, delivered at a dead-end rail siding, would have to be conveyed over unusually long distances—400 feet from unloading point to storage bins.

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WITH MONTANA FIRM — **Leo S. Becker is now director of nutrition for Teslow, Inc., Bozeman, Mont. He was formerly director of nutrition for The McCabe Co., Minneapolis grain and feed firm which was sold to the Farmers Union Grain Terminal Assn., St. Paul. Mr. Becker was with the Star-Hi Feeds division of McCabe for 20 years.**

Depression Hits Turkey Industry in Arkansas; Feed Business Suffers

By Special Correspondent

BERRYVILLE, ARK.—The feed industry here in Carroll County, often called the "Turkey Capital of Arkansas," is feeling the effects of depressed prices for turkeys and turkey eggs.

Talks with feed dealers, turkey and broiler producers and other business and agricultural leaders reveal that the low prices of the past few months have forced a sharp reduction in turkey production.

This, in turn, has cut deeply into the sales of feed and related supplies, officials believe. They said it may have a depressing affect on the feed industry for several months to come.

A banker in the county noted that many producers have gone out of the turkey business. He said "deals have been slow in opening up this year."

The banker commented: "A number of operators lost money on their flocks last year, and now it's hard for producers to make deals for brooders or range birds. We look for the situation to ease a little in a few weeks, however."

A leading feed dealer in the county reported that there will be a large reduction in the number of birds on ranges in this region this year. He said, however, that he planned only slight reductions and that he will range about 50,000 birds.

This feed store owner said he knows of a large number of turkey operators who "apparently will be out of the business this year because they lost their hats in 1958." He looks for feed sales to drop in proportion to the turkey reduction.

The apparent lack of interest in brooders for ranging purposes has caused hatchery operators to cut the prices they are paying for hatching eggs.

Agricultural officials reported that a few layer flock owners have been forced to sell their birds, while others are having to take "much lower" prices for their eggs.

Brooder house operators are also feeling the pinch. Although one operator now has his houses filled to capacity with turkey poults and broilers, he complained that he was being forced to accept lower prices for brooding than in the past.

"I received 20¢ for turkey poults when I started brooding under the integration set-up a few years ago," he said. "Now, I do the very same thing for 10 or 12¢ a bird."

He said a number of operators have been unable to obtain birds to fill their houses.

"Feed dealers are partly to blame for this situation," he declared. "They have encouraged large-volume, integrated operations until the turkey and broiler markets have been glutted."

Ontario Poultry Show Scheduled June 16-18

LONDON, ONTARIO — The showcase of Canada's poultry industry this year will be the Poultry Industry Conference and Exhibition to be held at the Western Fair Grounds in London June 16-18.

Poultry breeders, feed manufacturers, equipment dealers and chick and turkey hatcherymen will be exhibiting the latest model and design developed to increase the efficiency of the poultry farmer. It is planned as a producer's show with the express purpose of providing information of a practical nature which can be readily applied to his operations.

RETIRED FEED MAN DIES

HARDY, ARK. — Robert Newton Clay, 76, retired operator of the Clay Feed Store and a poultryman here, died recently at a Batesville, Ark., hospital following a long illness.

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SALES ASSISTANCE from well trained, enthusiastic district managers produces new business and keeps Honegger dealers inspired. Product specialists, such as building and equipment salesmen, help dealers close big sales.

LOCAL PROMOTIONS and "Planned Selling" that move 75-150 tons of feed out of the dealer's stores are not uncommon for Honegger dealers—with bulk of business on cash basis, too. Honeggers help plan and man open houses, hay-makers and ice breakers.

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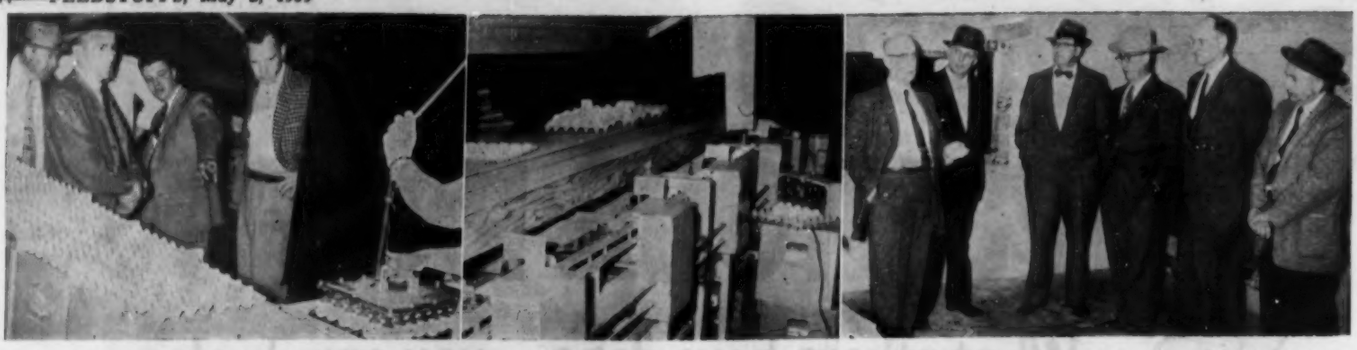

TOUR OF MARKETING SERVICE PANT—First picture: L. E. Deller (pointing), marketing service manager, Fair-Acre Certified Egg Marketing Service, Farmville, Va., explains economic importance of vacuum lift's 4-doz. capacity egg-handling facilities during tour for production and marketing representatives of North Carolina's commercial egg industry. Second picture: Electronic scales in boxes beside conveyor belt (lower left and center) weigh each egg individually before shunting it onto proper packaging table. Scales feed number of eggs of each size into tabulator which totals and prints results of each lot of eggs. Third picture: Dr. R. T. Parkhurst (left), director, Fair-Acre research, explains plant's egg breaking room to North Carolina Day visitors. He said breaking and freezing facilities salvage eggs and income formerly lost to the producer.

Electronic Grading, Sizing of Eggs Heart of Virginia Marketing Unit

FARMVILLE, VA.—An egg marketing service here, which uses high speed, electronic egg-handling equipment, reportedly makes it possible for small flock owners to sell their eggs on an equal basis with large producers. The heart of the marketing facility is the grading and sizing equipment which enables a person—who would ordinarily grade 20 to 30 cases of eggs a day in a hand candle-carton operation — grade 20 cases an hour with greater accuracy.

The Fair-Acre Certified Egg Marketing Service, Farmville, which has installed the faster egg-grading and packaging facilities, was recently described to professional production and marketing representatives of North Carolina's commercial egg industry during a tour of the marketing service's plant, which was a part of a North Carolina Day program. More than 120 North Carolina county agents, extension workers, State Department of Agriculture officials, bankers, Production Credit Assn. personnel, state college staff members, feed dealers and laying flock owners participated in discussion on egg production and marketing.

Emmett Williams, sales manager, Fair-Acre Feeds Division, Lindsey-Robinson & Co., Roanoke, said, in welcoming tour guests, "All feed companies have egg production programs, but we felt that a marketing service was essential if the flock owners were to receive the best returns on their investment. Needless to say, the egg producer has to be financially successful before we can succeed as a feed manufacturer."

Mr. Williams explained that the large volume of high quality eggs produced by his firm's Fair-Acre certified egg program makes it possible to use the high speed, electronic egg handling equipment, which permits the marketing service to grade, size and package eggs "faster, more accurately and at less cost" than can be done by individual producers. He said the company expects to have two million birds supplying eggs to the marketing service.

"Our marketing service—which is operated only on a self-sustaining basis—makes it possible for the small flock owner to sell his eggs to the large chain stores on an equal basis with the flock owner who has 30,000 birds in production," Mr. Williams said. "Furthermore," Mr. Williams told the group, "by letting us do his grading, sizing, packaging and marketing for him, the flock owner has time to manage a much larger flock of birds. That means more money to him."

The air-conditioned plant, he said, is kept at 65° F., while egg handling rooms are held at 55° F. and humidi-

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fied automatically to maintain maximum egg quality. Electronic scales weigh each egg, sorting them into proper sizes for packaging.

Visitors received a brief explanation of the company's production plan from Robert S. Stevens of the firm's sales staff, who stressed the importance of producing a large percentage of grade A eggs at a low cost of production. "This is extremely important to the producer because grade B eggs pay him an average of 9¢ doz. less than grade A eggs. A large volume of grade A eggs is also essential to the marketing service," Mr. Stevens continued, "because its equipment cannot operate efficiently unless each lot of eggs is more than 90% grade A. Because the marketing service is operated entirely for the producer's benefit and because the producer makes more money from grade A eggs, we know that the requirements of the Fair-Acre certified egg program are essential to the success of each producer."

As though following a shipment of eggs through the plant, guests visited the receiving dock where each producer's lot of eggs is put on pallets. They were told that each producer has a permanent lot number and all eggs identified by a particular lot number are handled as a separate unit.

From the receiving dock, the palleted eggs move into the egg holding rooms to await their turn on the grading tables. Holding rooms are humidified to keep egg quality constant. Temperature in these rooms is 55° F., considered ideal for maintaining quality, and about 10° F. colder than the work area. Company officials explained that if holding rooms and processing areas vary more than 10° F., eggs will sweat and lose their bloom, the protective coating put on by the hen which helps keep bacteria out.

The eggs then go to the grading tables where a vacuum lift picks up 4 doz. eggs at a time from the case and places them on the grading table. Guides said the use of such a lift "not only reduces breakage by 13%, but speeds up the grading process, permitting one operator to keep two grading tables filled." The grading table carries the eggs over four mercury vapor lamps. Accuracy in grading is improved because the table's mechanism spins each egg four times while passing over the lamps. Each egg also can be compared with other eggs simultaneously, as 48 eggs are in view over the lamps at once.

Conveyor Belt

After imperfect eggs are removed, the remainder continues on a conveyor belt, passing over electronic scales which weigh each egg. Automatically, the sized eggs are carried to the packaging tables where they are cartoned or cased for market.

The visitors learned that the electronic equipment which sizes the eggs also tabulates and records the number of eggs of each size in the producer's lot. Imperfect eggs removed by the grader are also tabulated as to grade and size, so that all of a producer's eggs are accounted for. Imperfect eggs are packaged according to grade, if suitable, or are sold locally.

The plant has a breaking room and quick-freeze facilities to salvage eggs that ordinarily would be lost to the producer.

Cartoned and cased eggs move into the refrigerated and humidified holding room or are loaded directly into refrigerated trucks for market.

Visitors also had a marketing session with Dr. Robert J. Krueger, poultry specialist and developer of the firm's egg program. Stressing the economic importance of the commercial egg industry to the South, Dr. Krueger pointed out that a community, by adding 20,000 layers, would increase the farm income of that area by at least $150,000 a year. Dr. Krueger said that a producer on the Fair-Acre certified egg program should realize a labor profit of $1.25 per hen per year if he follows the company's controlled cost program.

"We are not a brokerage concern," Dr. Krueger told the group, "We guarantee to buy all of the producer's eggs throughout the year. With our excellent production program and our unique marketing service, a producer on our program will make as much, if not more, per year than he would receive by marketing his own eggs," Dr. Krueger said.

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New England Feed Men Hear Suggestions on Dairy Rations

By DR. STANLEY N. GAUNT
Extension Dairyman
University of Massachusetts

BOSTON—The first New England Dairy Feed Conference held in Boston on April 16 proved to be a real success. Designed primarily for feed mixers, especially small operators, the one-day program at Hotel Lenox attracted over 60 from all over the New England area. It was sponsored cooperatively by the six New England Land Grant Colleges and a committee from the feed industry.

FEED ADDITIVES — Dr. Lane Moore, chief of the dairy research branch of USDA, the featured outside speaker on the program, made several points of interest to the feed industry. Here are a few excerpts from his talk on "Feed Additives, Minerals, and Vitamins for Dairy Cows":

"Recently, many advertisements have appeared in farm papers recommending the use of Aureomycin in the rations of mature dairy cattle. This inclusion has been based on the premise of preventing foot rot, and other low grade infections. The antibiotic is likewise supposed to increase milk production. Data supporting these particular claims are not adequate at this time. Such data as do exist at this time do not indicate that Aureomycin should be used. Therefore, at this time it is not advised to add it to the rations of mature dairy cattle.

"Research has shown that the feeding of sodium propionate is effective in the prevention of ketosis. However, there has been a problem of palatability of the feed in which the propionate is mixed. More recent studies have shown that the addition of both calcium and sodium lactate is also effective in the prevention of ketosis and is also somewhat more palatable when mixed into the grain ration. These lactate salts are fed for a period of seven to eight days as 6-10% of the concentrate mixture. It seems quite likely that commercial feeds will contain these additives for the prevention of ketosis in dairy cows where ketosis is a problem. It should be borne in mind that their use does not always completely prevent the occurrence of ketosis.

"The evidence that the addition of materials containing fatty acids to normal rations fed to dairy cattle will cause an increase in digestibility of the cellulose in the ration is somewhat conflicting. However, it seems unlikely that they will improve the overall efficiency of the ration since these acids are present in the normal rumen contents. Whether these acids are produced in sufficient quantity in the rumen to promote normal cellulose digestion, where an unbalanced ration is fed, such as one low in protein, seems unlikely on the basis of present evidence. However, until such time that good proof of the value of such products in the rations of cattle is forthcoming, we should guard against their indiscriminate sale and use. The same is true for rumen bacterial cultures."

The following summarizes other points made by Dr. Moore: "The only two vitamins which we know that are required in the feed supply by the dairy cow are the vitamins A and D. They are furnished in ample supply by good quality roughages fed the mature animal. Vitamins A and D are usually added to calf starters for growing calves. The addition of vitamin D is also effective in the prevention of milk fever by feeding some 5 to 30 million units per day of vitamin D for three to seven days before and one day after calving. The feeding of thyroprotein, except under certain specific conditions, is not justified. Also the evidence at present does not warrant the use of stilbestrol for dairy cattle and the addition of sprouted grains or various rumen bacterial factors is not justified."

MINERAL NEEDS — Dr. Harry Keener, director of the New Hampshire Experiment Station, preceded Dr. Moore to the platform and discussed "Minerals in the Dairy Ration." Dr. Keener's remarks were made on the basis of his analysis of forages and feeds in New England over many years. He said that the matter of minerals in rations has often been handled from the standpoint that "if a little is good, more is better." He stated that this is not sound and that the optimum amount of various minerals needed may be found to differ for various functions. That is, a certain level of calcium may give optimum growth, another level might give a maximum digestion coefficient, and still another level may result in optimum retention of phosphorus, another essential mineral. It is this sort of thing which may cause us to change our answers in the future.

Dr. Keener stated that the salt requirements for animals being fed moderate quantities of grain can be met by the inclusion of 1% of salt in the grain mixture plus free access to loose or block salt. He said that the roles of calcium and phosphorus are closely related because both are important constituents of bone. A short-time calcium deficiency has little effect on the animal because calcium can be easily mobilized whereas a phosphorus deficiency can become serious very quickly because the same type of mobilization is not possible. Calcium deficiency is very rare, but phosphorus deficiency occurs much more frequently, without phosphorus supplementation in the rations.

Magnesium deficiency as such has not been observed, according to Dr. Keener, in cattle maintained under farm conditions, nor does the deficiency of iron probably occur under farm conditions in New England. At the present time, we cannot prove that supplemental copper is needed in New England. However, cobalt should be supplemented in the ration of dairy cattle in this area. He stated that experimentally, they have reduced the cobalt content of forage to one-third of the minimum requirement of dairy cattle by increasing the forage yields per acre. Cobalt supplementation is likely to become more essential with liberal fertilization of our soils and

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the resulting increased production. Cattle not receiving a cobalt supplement in grain should have free salt containing cobalt or have cobalt added in some other supplement.

For many years, Dr. Keener said, "we believed that iodine deficiency or goiter was solely a problem of our midwest." He said that through liberal fertilization we have reduced the iodine content of our grasses even in the fields located 30 miles from the Atlantic Ocean. As a result of feeding such forage to pregnant cows, 13 thyroid glands from calves born one winter averaged over 100 grams and one weighed 409 grams. The normal is about 7 to 9 grams. We recommend that iodized salt be used in dairy feeds in the area and, when grain is not fed, iodized salt should be provided free choice or iodine should be added in some other way to the ration.

MILK-FEED — The morning session opened with a talk by Dr. Neils Rorholm, head of the agricultural economics department at the University of Rhode Island, on the outlook for the dairy industry. An international flavor was introduced in the meeting since Dr. Rorholm was born and grew up in Denmark. He received his Ph.D. from the University of Minnesota. He discussed, in an interesting manner, the various aspects of the grain feed ratios and applications to our various areas, particularly in relation to hay prices, production level of cows and the intensity of operations. He stated that in general, concentrated feeds rank pretty high in return for dollar invested compared to other expense items such as machinery and power. He said if farmers first made sure that cows were being fed the right rations before they bought that additional tractor or replaced the old one, they wouldn't have to finance a tractor and you wouldn't have to finance their feed.

On the credit problems which face us all, he had this to say: Whether one has to finance on accounts receivable or do it by some other means, it costs money to offer credit, and for the small manufacturer, it costs more than for the larger man. He offered this suggestion: Deal with credit agencies that have a farm loan department. They can give you better service if they have to try to evaluate the financial status of people who owe you money.

Dr. Rorholm said that he felt whole midwestern milk will not come in here. It costs too much to ship; rather it will go to other areas in south central and south Atlantic states, for between these two areas and the Midwest there is slightly cheaper transportation, and equally important, there is a difference in efficiency. In the long run, you can only send milk to another area if your efficiency of production is sufficiently greater than that in the other area to pay for the transportation.

WHAT'S A GOOD DAIRY RATION?—Dr. Al Smith, research nutritionist and teacher at the University of Vermont, followed Dr. Rorholm and discussed, "What's a Good Dairy Ration?" He stated that the basic elements of any good livestock ration may be summarized in the following points: (1) Nutritional adequacy, (2) acceptability or palatability, (3) proper physical nature and balance, and (4) economy. He felt that the greatest deficiency in our feed program for cattle is a shortage of energy. He said too many dairymen tend to over-evaluate their forage both in terms of nutritional value and the amount of this forage that a cow will voluntarily consume.

This brings about a depressing effect on milk production which is further dampened by the fact that the cow is fed concentrates according to her present production level rather than on what she could do based on better roughage. He commented that much effort is now being directed toward evaluating quality in hay and silage. Of all the methods, hay grades, eye ball test, chemical analysis, the best practical indication of quality is the stage of maturity of growth. He suggested that it would be well to follow the calendar in determining cutting time of forage, that even in late seasons, the plant has a way of catching up so that from one season to the next the difference in the actual date for cutting to assure optimum nutrient yields in forage is not as great as one would think.

RATION LEAFLET — Prof. John Archibald, research nutritionist at the University of Massachusetts, presented to the group the New England College Grain Rations leaflet, revised in December, 1958. This leaflet, Prof. Archibald told the group, was published at the request of the industry for the first time in 1953 and has since been published annually. It contains rations of various protein levels, high protein supplement, calf starter and milk replacer. It is a cooperative publication prepared by a committee of representatives of the six Land Grant Colleges and the feed industry.

PANEL DISCUSSION—The day's program concluded with a panel discussion on dairy feeding with Dr. A. M. Smith, panel leader, with other members of the panel, including Dr. L. A. Moore and Dr. D. N. Stern, extension veterinarian at the University of Massachusetts; Dr. Bruce Poulton, head of the department of animal science, University of Maine; Prof. Wilbur Hesseltine, extension dairyman at the University of Connecticut in charge of production testing, and Dr. James Cobble, head of the department of animal and dairy husbandry at the University of Rhode Island.

The committee in charge of the program was: John McInture, H. G. Savage, James Timberlake, H. M. Lockwood, Dr. James Cobble, Dr. A. M. Smith and Dr. S. N. Gaunt, chairman. Those attending the meeting thought this should become an annual affair and asked the committee to make such plans.

New Butterfat Record

NEW BRUNSWICK, N.J.—A 12-year-old cow has made a new world's record for butterfat production, according to a report from Rutgers University. The cow, owned by Henry C. Woods, Princeton, produced 34,810.9 lb. of milk and 1,733.13 lb. butterfat in 365 days.

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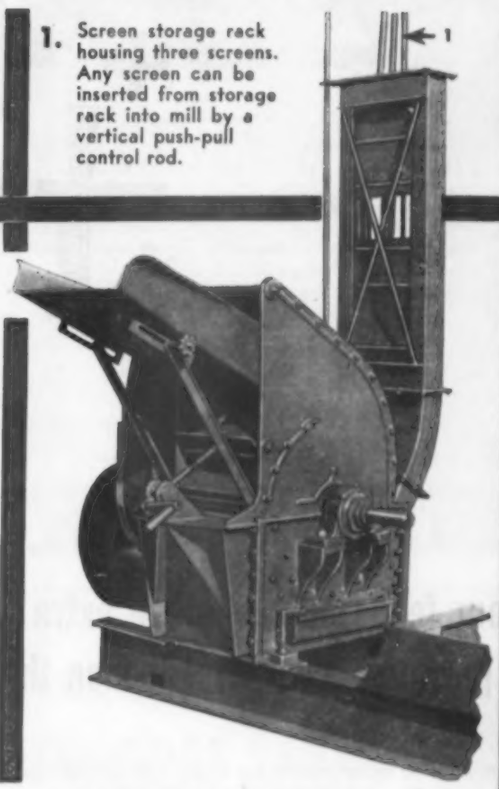

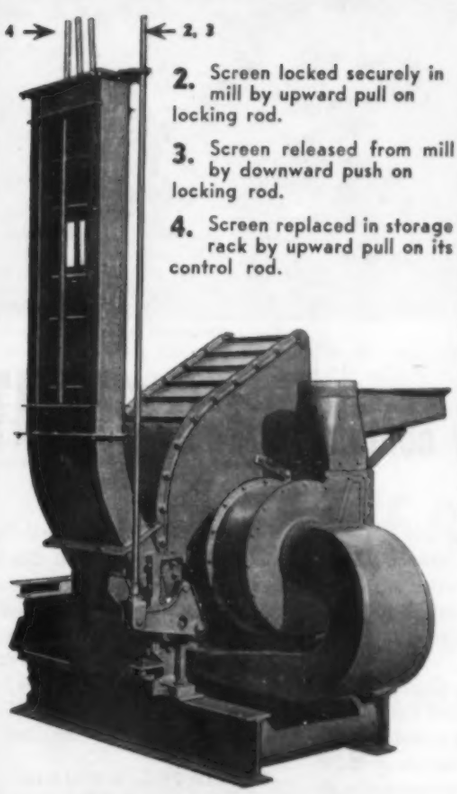

2. Screen locked securely in mill by upward pull on locking rod.

3. Screen released from mill by downward push on locking rod.

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Convention Calendar

May 8-10—Grain Processing Machinery Manufacturers Assn.; Chicago; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

May 10-12—National Cottonseed Products Assn.; Mark Hopkins and Fairmont Hotels, San Francisco; sec., John F. Moloney, 43 N. Cleveland St., Memphis, Tenn.

May 11-13—American Feed Manufacturers Assn. Convention and National Feed Industry Show; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 15-16—Missouri Grain, Feed & Seed Assn.; Hotel Governor, Jefferson City, Mo.; sec., D. A. Meinershagen, Higginsville, Mo.

May 25—Des Moines Feed & Grain Club Field Day; Des Moines Golf and Country Club; ticket chairman, Curtis Twedt, Spencer, Kellogg & Sons, Inc., 119 S.E. 3rd, Des Moines, Iowa.

May 27-28—North Carolina Poultry Field Day; North Carolina State College, Raleigh; chm., Dr. E. W. Glazener, Poultry Department.

June 1-2—Central Retail Feed Assn.; Hotel Schroeder, Milwaukee; sec., Eldon H. Roesler, 1712 W. St. Paul Ave., Milwaukee, Wis.

June 7-9—Indiana Grain & Feed Dealers Association; Sheraton Hotel, French Lick, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis, Ind.

June 7-9—Eastern Federation of Feed Merchants, Pocano Manor Inn, Pocano Manor, Pa.; sec., Austin W. Carpenter, Sherburne, N.Y.

June 8-10—Alabama Poultry Industry Assn.; Municipal Auditorium, Birmingham; exec. sec., W. L. Walsh, P.O. Box 567, Montgomery, Ala.

June 8-12—Feed Microscopy Short Course; Missouri College of Agriculture, Columbia, Mo.; sponsored by Missouri College of Agriculture and Missouri State Department of Agriculture; chm., G. M. Barnhart, chief chemist, State Department of Agriculture, Jefferson City, Mo.

June 9—Northeastern Poultry Producers Council Egg Quality and Grading School; University of Massachusetts, Amherst; mgr., Dr. Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

June 9-10—Association of Southern Feed and Fertilizer Control Officials; Velda Rose Motel, Hot Springs, Ark.; sec., Maurice B. Rowe, Virginia Dept. of Agriculture, 1123 State Office Bldg., Richmond, Va.

June 25-27—Delmarva Chicken Festival, Dover, Del.; Dave Green, 1102 S. State St., Dover, Del.

June 25-27—Canadian Feed Manufacturers Assn.; Bigwin Inn, Lake of Bays, Ontario; N. D. Hogg, Box 66, Station Q, Toronto, Ont.

June 25-27 — Delmarva Chicken Festival; Dover, Delaware; sec., J. Frank Gordy, Delmarva Poultry Industry, Inc., R.F.D. No. 2, Box 47, Georgetown, Del.

July 7-8—Poultrymen's Get-Together, Cornell University, Ithaca, N.Y.

July 10-14—Georgia Feed Assn.; General Oglethorpe Hotel, Savannah, Ga.; sec., Will L. Kinard, 3240 Peachtree Rd. Bldg., Atlanta 5, Ga.

July 21-23—American Poultry Congress and Exposition; Kiel Auditorium, St. Louis, Mo.; exec. sec., Don M. Turnbull, American Poultry and Hatchery Federation, 521 E. 63rd St., Kansas City 10, Mo.

Aug. 3-8—Feed Microscopy Short

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

• • •

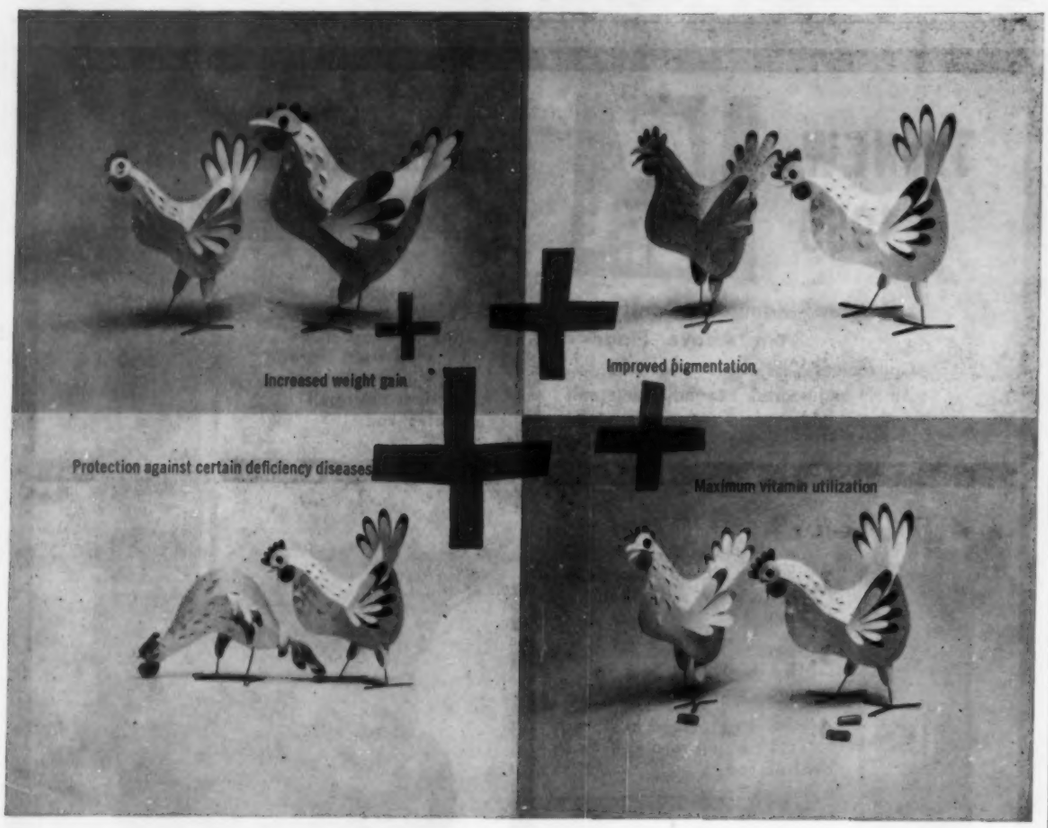
May 18-19—Beef Cattle & Swine Field Days; Oregon State College, Corvallis; W. Dean Frischknecht, Animal Husbandry Specialist.

Sept. 23—Vermont Feed Dealers and Manufacturers Assn.; University of Vermont, Burlington, Vt.; sec., D. C. Henderson, H111s Agricultural Science Building, Burlington, Vt.

1960

Jan. 4-5—Kansas Formula Feed Conference; Kansas State University, Manhattan, Kansas.

Feb. 4-5—Oregon Animal Industry Conference; Oregon State College, Corvallis, Ore.; chm., Dr. J. E. Parker, Poultry Husbandry Department.



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Course; Texas Agricultural Experiment Station, College Station; chm., E. E. Brown, Asst. State Chemist.

Aug. 4-7 — Poultry Science Assn. (meeting for members and executive committee invited guests only), Iowa State College, Ames; chm., Dr. Robert E. Phillips, poultry department, Iowa State College.

August 7-8—North Carolina Feed Manufacturers Assn.; Ocean Forest Hotel, Myrtle Beach, S.C.; sec.-treas., A. M. Upshaw, Jr., North Carolina Feed Manufacturers Assn., Box 44, Mocksville, N.C.

Aug. 10-12—American Soybean Assn. and National Soybean Processors Assn., joint convention; Sheraton-Jefferson Hotel, St. Louis, Mo.; exec. vice president, George M. Strayer, American Soybean Assn., Hudson, Iowa; sec., National Soybean Processors Assn., R. G. Houghtlin, 3818 Board of Trade Bldg., Chicago 4, Ill.

Aug. 11-12 — Wisconsin Nutrition School; Memorial Union, University of Wisconsin, Madison; chm., Dr. Robert H. Grummer, Dept. of Animal Husbandry, University of Wisconsin.

Aug. 17-18—Kentucky Feed Conference, sponsored by University of Kentucky and Kentucky Feed & Grain Assn.; Brown Suburban Hotel, Louisville; sec., Jack Weber, P.O. Box 425, Lexington, Ky.

Aug. 23-25—Poultry Industries of Louisiana, Inc.; Captain Shreve and Washington Youree Hotels, Shreveport; sec., Clyde Ingram, Louisiana State University, Baton Rouge, La.

Aug. 23-25 — The National Hay Assn.; Sir Francis Drake Hotel, San Francisco; sec., Fred K. Sale, 600 Board of Trade Bldg., Indianapolis, Ind.

Sept. 9-10 — Pet Food Institute, Drake Hotel, Chicago; sec., Clyde Kassens, 3325 Michigan Ave., Chicago, Ill.

Sept. 9-10 — Maryland Poultry Service Conference; University of Maryland, College Park; chm., Wade H. Rice, University of Maryland, College Park, Md.

Sept. 13-14—Grain and Feed Dealers National Assn. (work meeting for directors, committees and members), Minneapolis; exec. vice pres., Alvin E. Oliver, 400 Folger Bldg., Washington 5, D.C.

Sept. 16-18—National Feed Ingredients Assn.; Pick-Congress Hotel, Chicago, Ill.; sec., Peter W. Janss, 212 Equitable Bldg., Des Moines, Iowa.

Sept. 17-18 — Arkansas Formula Feed Conference; University of Arkansas, Fayetteville; chm., Dr. E. L. Stephenson, Department of Animal Industry.

Sept. 18—College - Feed Industry Conference; Iowa State College, Ames; chm., Prof. Emmit Haynes, Animal Husbandry Dept.

Sept. 23-25 — Feed Production School; Continental Hotel, Kansas City; Lloyd Larson, 20 W. 9th St. Bldg., Kansas City, Mo.

Oct. 6-8 — Northeastern Poultry Producers Exposition; Farm Show Building, Harrisburg, Pa.; sec., Dr. Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

Oct. 7-9—Texas Nutrition Conference; Texas A&M College, College

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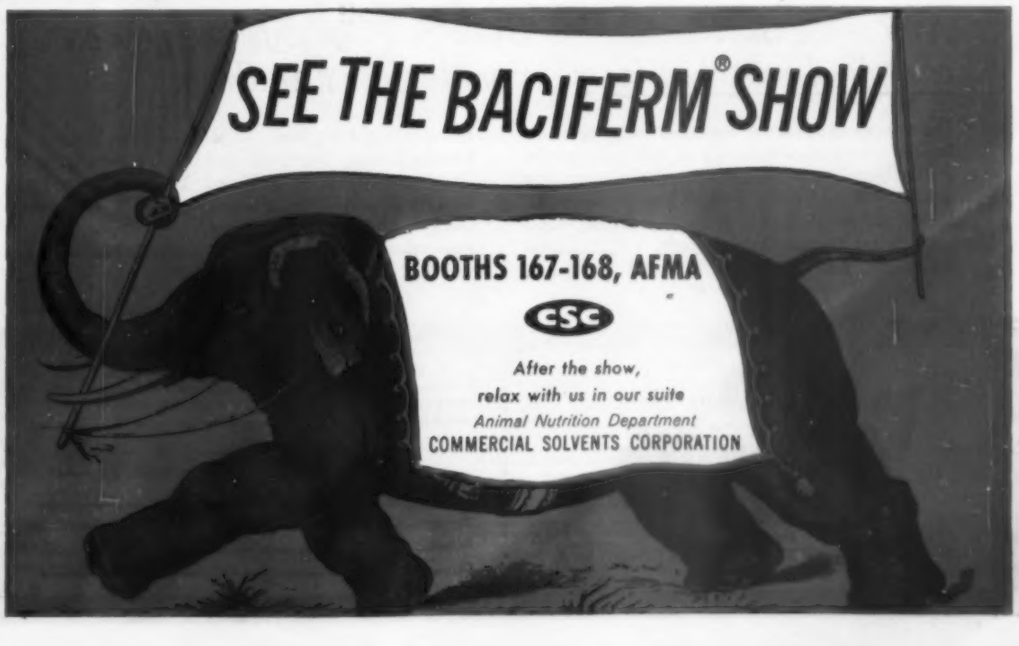

PLANT ADDITION—This new wing on one of the Daffin Manufacturing Co. plants near Lancaster, Pa., adds another 6,000 sq. ft. of production space, according to a company announcement. This is the second 50x150 ft. extension of the parts and sub-assemblies fabrication plant, matching both structurally and architecturally the previous steel-frame and brick addition completed in 1957. Daffin makes mobile feed mills, packaged feed plants and other feed manufacturing equipment.

Station; chm., Dr. J. R. Couch, Department of Poultry Science.

Oct. 14 — Animal Nutrition Research Council; Shoreham Hotel, Washington, D.C.; sec., Irwin Olcott, Dawe's Laboratories, Inc., 4800 S. Richmond St., Chicago 32, Ill.

Oct. 14-15—Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Agricultural Experiment Station Bldg., University of Kentucky, Lexington, Ky.

Oct. 20-21—Virginia State Poultry Federation; Hotel John Marshall, Richmond, Va.; sec., J. Paul Williams, 615 E. Franklin St., Richmond 19, Va.

Oct. 22-23 — Annual Stockholders Meeting, Cooperative G.L.F. Exchange, Inc., Onondago County War Memorial Building, Syracuse, N.Y.

Oct. 23-24—Oklahoma Formula Feed Conference; Oklahoma State University, Stillwater; chm., Dr. Rollin H. Thayer, Poultry Science Department.

Oct. 30—Illinois Sheep Producers Day; University of Illinois, Urbana; chm., Dr. U. S. Garrigus, Department of Animal Science.

Nov. 4-7 — National Renderers Assn., Hollywood Beach Hotel, Hollywood Beach, Fla.; sec., Miss Jamie Fox, 30 N. La Salle St., Chicago 2, Illinois.

Nov. 12-13—Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Dr. F. W. Hill, Poultry Husbandry Dept., Cornell University, Ithaca, N.Y.

Nov. 17-18—Arizona Grain & Seed Association; Hotel Westward Ho, Phoenix; sec., Hayden C. Hayden, Hayden Flour Mills, Box 156, Temple, Ariz.

Dec. 8-9—Poultrymen's Service Clinic; Cornell University, Ithaca, N.Y.

1960

Jan. 25-27 — Southeastern Poultry & Egg Assn.; Municipal Auditorium, Atlanta, Ga.; sec., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Feb. 12-14—Fact Finding Conference, sponsored by the Institute of American Poultry Industries; Municipal Auditorium, Kansas City, Mo.; pres., Harold M. Williams, 59 East Madison, Chicago, Ill.

Feb. 21-23—Ohio Grain & Feed Dealers Assn.; Commodore Perry Hotel, Toledo; sec., G. E. O'Brien, 694 N. Ohio Street, Greenville, Ohio.

Feb. 22-23—Virginia Feed & Nutrition Conference; Hotel Roanoke, Roanoke; J. Paul Williams, sec., Virginia State Feed Assn., 615 E. Franklin St., Richmond, Va., or Prof. Paul M. Reaves, Department of Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

March 7-8—Grain & Feed Dealers National Assn.; Hotel Muehlebach, Kansas City; sec., Herbert L. Sharp, 400 Folger Bldg., Washington 5, D.C.

March 23—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati, Ohio.

Water Prospects Vary In West, USDA Says

WASHINGTON—Western water supplies, as reported in the U.S. Department of Agriculture's 1959 water supply outlook, are "poor in the South and Southwest" and "fair to good in the North."

The report said this prospect contrasts with last year's generally abundant water supplies in the western states, and it recalls the earlier seven-year trend of adequate supply in the Pacific Northwest to shortages in the Southwest.

Snow survey supervisors of USDA's Soil Conservation Service said, however, that carryover storage from relatively high 1957 and 1958 runoff, particularly in the larger reservoirs, will provide supplemental and late season water where the snowpack is normal, and tend to alleviate a disastrous shortage during the 1959 season where the snowpack is low.

With average or less snow accumulated in the mountains at the April 1 measuring time, little probability is seen of damaging high streamflows resulting from snow melts, according to the report.

BUYS GRAIN FIRM

MERCED, CAL.—Art Polzine, A. W. Polzine Co., Merced, has purchased the James Grain Co., also of Merced. Mr. Polzine said he will continue to operate the mills at San Jose and Madera, but will discontinue operations in Merced.

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Lilly **INTERVIEWS**

MR. AND MRS. RICHARD GRABER, MINERAL POINT, WISCONSIN

"Our Hygromix pigs went to market ahead of the others"

Young farm couple puts new antibiotic over series of tough hurdles. Finds that day-by-day worm control pays off.

by Eugene S. Hahnel

Experimenting and testing have become second-nature to the Grabers. Rose Marie has her Master's degree in animal husbandry from the University of Wisconsin. Richard was one of Wisconsin's leading 4-H members.

In cooperation with the Universities of Wisconsin and Illinois, the Grabers compared two lots of 40 baby pigs up to 75 pounds. One group was fed Hygromix in the feed. The other received the same ration without Hygromix. "At eight weeks we wormed the controls (no Hygromix) with a purge-type wormer. There were lots of worms," says Mr. Graber. "The Hygromix pigs ran away from the others after 40 lbs. or so. Only 6 or 8 pigs in the control lot could match the Hygromix bunch. The Hygromix pigs all went to market ahead of the others. Also, they needed 14-15% less feed." This experiment demonstrated two things to the Grabers: 1. That they had a costly worm population. 2. That day-by-day Hygromix worm control paid off for them.

"The universities and our feed manufacturer ran worm egg counts to check worm numbers in our pigs while they were growing. Hygromix cut the worm egg count to a very low level. In the controls, however, egg counts ran high." What does this mean? It means that Hygromix kills baby roundworms, nodular worms, and whipworms . . . day by day as they enter the intestinal tract . . . long before they can do internal damage or lay eggs.

Mr. Graber summed up his feelings about Hygromix: "Hygromix is no medicine. It's an everyday method of control and you should use it as recommended."

"The pigs fed feed with Hygromix looked like peas in the pod."

Say the Grabers: "Worms and anemia seem to be at the root of most swine disease problems. Hygromix, by controlling worms, gives us a new level of health in our herd."

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"I don't mind so much that he makes me use the sacks for pillow cases, but he won't let me take the feed out of them!"

More Broiler Supply Hens Pullorum Tested

WASHINGTON—In the states for which comparisons are available, 2,320,302 chickens for supplying broiler hatching eggs were tested for pullorum disease during March—up 46% from March, 1958, according to the U.S. Department of Agriculture.

Testings July, 1958, through March, 1959, were up 28% from this period a year earlier.

Chickens for other purposes (egg-type) tested during March totaled 421,587—down 13% from the number tested in March, 1958. The number tested July, 1958, through March, 1959, was 1% less than the number tested during this period a year earlier, USDA reported.

Appointment Made By Eli Lilly & Co.

INDIANAPOLIS, IND. — Walker Jacobs has been appointed by Eli Lilly & Co. as agricultural representative in the Rocky Mountain states. With headquarters in Denver, Colo., he replaces J. S. Lay who has transferred to the Pacific coast territory.

Walker Jacobs

According to O. B. Swearingen, sales director, agricultural and industrial products division, Mr. Jacobs will service feed manufacturers who use Stilbosol, Hygromix and other Lilly agricultural products.

A native of Andalusia, Ala., Mr. Jacobs attended St. Mary's University, San Antonio, Texas, and was awarded a B.S. degree in agricultural education by Texas A&M College in 1954.

Before joining Lilly, Mr. Jacobs was stationed in Houston, Texas, as an agricultural chemicals salesman for Dow Chemical Co.

CLUB SPEAKER

CLEAR LAKE, IOWA—Bob Zinn, sales manager of Allied Mills at Mason City, Iowa, spoke to the Clear Lake Rotary Club April 9 on "Pitfalls of Managing a Small Business." He said the U.S. is a nation of small businesses, listing 2.5 million businesses, with half of them worth less than $10,000. About 500,000 of them fail each year, he said.

Robert W. Odle — Fred Soldner

Robert Odle Promoted By Central Soya Co.

FT. WAYNE, IND.—The promotion of Robert W. Odle to the position of production control manager has been announced by Central Soya Co., Inc., Ft. Wayne.

Mr. Odle, product standards manager at the Decatur, Ind., plant since 1947, will be succeeded by Fred Soldner, assistant product standards manager at Decatur since 1952.

Mr. Odle will work closely with the company's feed mills on their production control problems and will continue his responsibilities with the analytical control laboratories, the announcement said. He joined the firm in the Decatur plant laboratory in 1937 and since then has been a chief chemist at two company plants and feed technician and product standards manager at the Decatur plant.

Mr. Soldner, a graduate of Bluffton (Ohio) College, joined McMillen Feed Mills in 1945. He was later named a chief chemist at the Gibson City, Ill., plant and quality control supervisor. He was named assistant to the product standards manager at the Decatur plant in 1952.

Storage Installations

ST. JOSEPH, MO.—Two building permits for construction of grain storage facilities have been issued by the St. Joseph building department. One permit for a 146,000-cu.-ft. installation, consisting of metal tanks, was granted to the B & E Grain Co. It will be built by the Morgan Construction Co., Omaha. Cost was listed at $115,000. The other permit went to the Chambers Motor Co., Des Moines, for a metal building with 873,000-cu.-ft. capacity on property leased from the Burlington railroad. Cost was listed as $175,000. The building will be 107 ft. wide and 208 ft. long.

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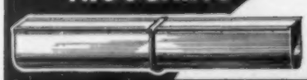

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Strong-Scott Widens Territorial Coverage

MINNEAPOLIS — Strong-Scott Mfg. Co., Minneapolis, has announced the addition of the entire state of Illinois to the list of states covered by sales engineers working directly out of the home office.

L. S. Strong, president, said that Daniel R. Moser, sales engineer with the firm for a number of years, is now directing sales in the Illinois territory, excluding the Chicago area. He was formerly serving grain and feed industries for the firm in an area comprising eastern Minnesota and western Wisconsin. Mr. Moser will reside in Decatur, Ill.

A. K. Martinson, who has been with Strong-Scott in the eastern Wisconsin area, will now represent the firm throughout all of Wisconsin. He will remain at his present address at Madison, Wis.

Donald M. Black of the grain and feed equipment division will cover most of the state of Minnesota. He maintains his office at the company headquarters.

Experimental Farm

HAMLIN, TEXAS—Fred B. Moore, Jr., who, with his father, owns the Pied Piper Feed Mills, is establishing a 300-acre experimental farm to be used with the mill operations. It is to have a herd of about 25 registered Herefords.

The cattle will utilize the grass on the farm and be fed from the mill. Mr. Moore said the experimental farm would be used to test various feeds the firm manufactures.

He also plans to establish a swine project for testing rations.

The Moores completed another unit of a battery of grain elevators last autumn, which gives them a storage of approximately 1,500,000 bu. grain.

USDA Reports Turkey Pullorum Testing Down

WASHINGTON — The number of heavy breed turkeys tested during March for pullorum disease totaled 76,820—down 19% from March, 1958, according to the crop reporting board, U.S. Department of Agriculture.

The number of heavy white breeds tested was up 44%. However, the number of other heavy breeds tested was down 45%. The number of turkeys tested is now approaching the low point in the annual cycle. The number of heavy breed turkeys tested July through March, 1959, totaled 3,179,980—up 8% from this period a year earlier.

The number of light breed turkeys tested during March totaled 28,575—down 18% from March, 1958. The testings July through March totaled 553,758, compared with 409,809 during the same months a year earlier—an increase of 35%.

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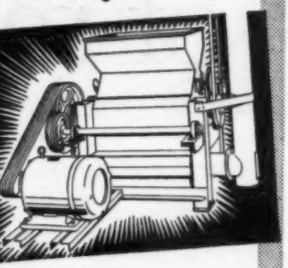

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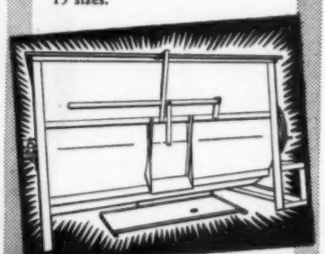

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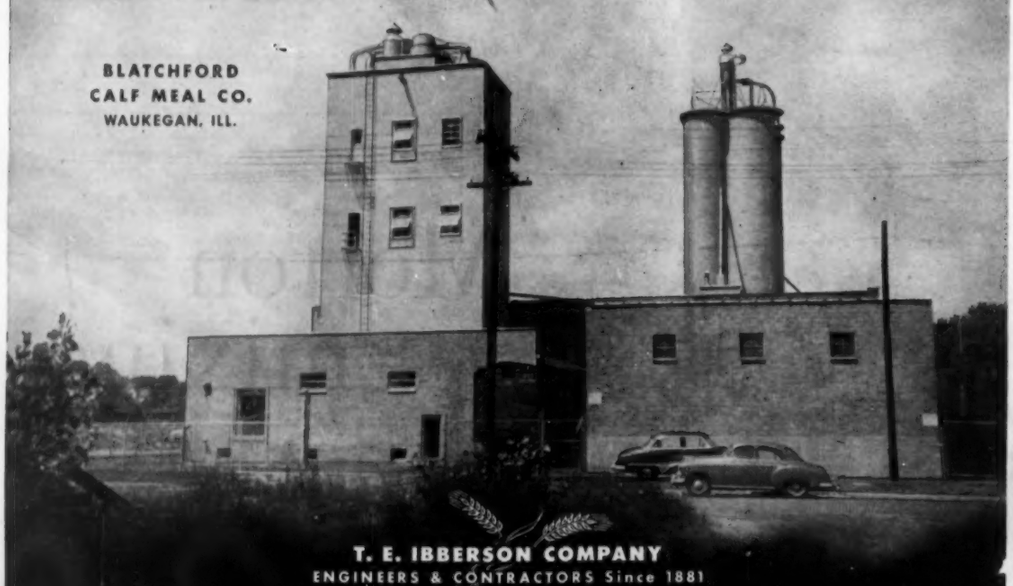

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Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

Effect of Plane of Nutrition Upon Reproductive Performance of Boars

● R. H. Dutt and C. E. Barnhart, University of Kentucky; Journal of Animal Science, Vol. 18, No. 1, February, 1959, pp. 3-13.

ABSTRACT

Nine weanling Hampshire boars were divided into three equal groups at an average age of 60 days, and hand fed at different planes of nutrition as follows: (1) 100%, (2) 70%, and (3) 50% of the National Research Council's recommended daily nutrient allowances for growing boars (1953). The basal ration contained approximately 16.1% crude protein and was comprised of: 74.7 lb. yellow corn, 22.0 lb. 43% protein soybean oil meal, 1.0 lb. ground limestone, 1.0 lb. steamed bone meal, 0.5 salt, 0.5 lb. vitamin and antibiotic premix, and 0.3 lb. trace mineral premix.

All boars were weighed at 2-week intervals, and feed adjustments made accordingly at that time. When weight differences appeared among the groups, the feeds given to the restricted intake groups was based on the average weight of all boars within each group, and not on the amount of feed consumed on the 100% allowance group. All boars were confined in concrete floored pens for a feeding period of 312 days. When 183 days of age, boars were checked for attainment of puberty, twice a week, using a teaser female and artificial vagina. A weekly semen collection was taken from each boar for three weeks prior to a natural breeding period of one month. Each boar in turn was naturally bred to three gilts, at an age of from 11 to 12 months. The gilts were checked daily for heat and each boar was allowed to serve a gilt only once. All gilts were slaughtered 25 to 28 days after breeding, and the reproductive tracts were removed and examined. After the natural breeding period, of approximately one month duration, the boars were ejaculated daily for a period of 7 days, to obtain a measure of libidio and semen quality under heavy usage conditions.

The results showed that average daily gains were not significantly different on the three different planes of nutrition; however, the average final weight of the boars on the 50% plane (243 lb.) differed significantly from those on the 100% plane (382 lb.). Age at puberty did not differ significantly between the various groups, while weight at puberty did differ significantly; the averages for age being 203 days, 100%; 212 days, 70%; 219 days, 50%; and the average weights being 223 lb., 100%; 171 lb., 70%; 135 lb., 50%.

Of the various semen characteristics studied—such as, volume, per cent motile cells, sperm concentration, and per cent abnormal cells—only total volume of the 50% group was significantly less. The fertility results from natural breeding of gilts showed no significant differences in numbers of gilts pregnant, number of normal embryos and numbers of degenerate embryos. In the seven-day semen study the only characteristics found to differ significantly among the boar groups were that the total volume and the volume minus gelatinous material were less for the lower plane of nutrition groups. All boars served the artificial vagina during the seven-day semen study — however, it was noted rather frequently that the boars on the lower plane of nutrition displayed greater interest in serving, particularly during the hotter part of the day.

COMMENT

This study does demonstrate that the functioning of the reproductive system in boars is rather resistant to under-feeding. The boars were group-fed and this fact probably accounts for the lack of statistical significance in the data in spite of rather large average variations in the data for growth, etc. For example, the final weights ranged from

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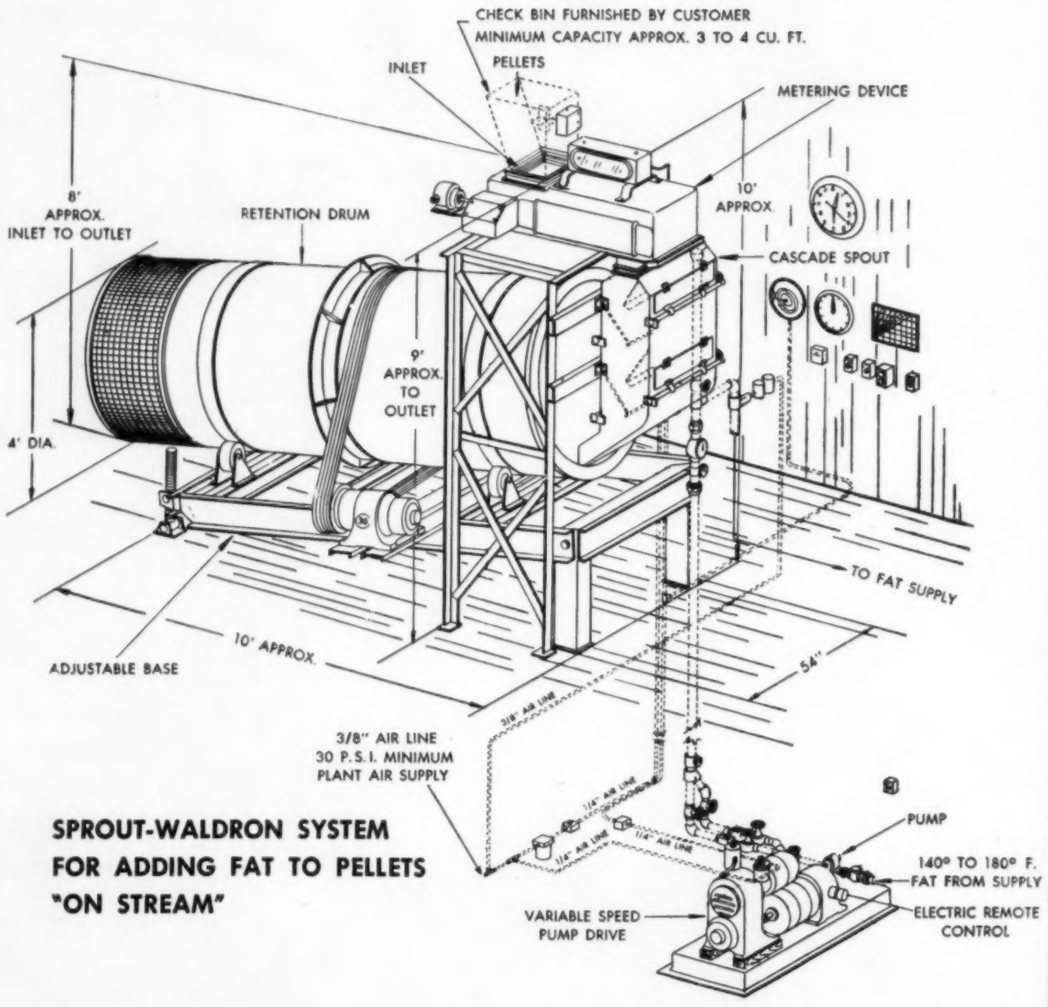
Two basic SPROUT-WALDRON



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335 to 435 lb., from 205 to 410 lb., and from 200 to 310 lb. for the boars on the 100, 70 and 50% planes, respectively. Certainly, in studies of this type, individual feeding should be the rule, rather than group feeding, particularly when the experimental numbers are very small—as in the case of this work.

●

A Succinoxidase Inhibitor in Feeds Associated with Muscular Dystrophy in Lambs and Calves

● G. H. Cartan and K. F. Swingle, Montana State College; American Journal of Veterinary Research, Vol. 20, No. 75, March, 1959, pp. 235-238.

ABSTRACT

Feed samples were obtained from Oregon, New York and Montana which could be classified as probably muscular dystrophy inducing or non-muscular dystrophy inducing. Hot ethanol extractions were made so that .001 ml. of extract contained activity from 1.0 mg. of feed.

The succinoxidase inhibitor levels were determined for the various samples and were found to be usually more abundant in feeds associated with muscular dystrophy of calves and lambs than in feeds with no such history. This factor appeared to be at a low level in growing hay, but appeared during the curing process, especially if curing was prolonged by cool rainy weather. Addition of Vitamin E to the enzyme system as alpha-tocopherol partly reversed the inhibitory action.

Whether the succinoxidase inhibitor is the result of an autolytic process during curing or caused by the action of saprophytes on moist hay is not known and must await further research. Affected hay is not usually visibly moldy and ordinarily only slightly discolored.

COMMENT

This interesting progress report offers us some clues as to basic cause of muscular dystrophy. Further work must be done to establish the significance of protective factors such as vitamins A and E, and selenium in the ration together with studies of management methods on various types of roughages. This work also helps to explain why naturally occurring muscular dystrophy may happen when neither low levels of Vitamin E in the ration or low levels in the blood, colostrum or milk are present.

International Reports On Employee Benefits

MINNEAPOLIS — International Milling Co., Minneapolis, last year spent approximately $3,834,000 for employee benefits. The figure was announced at special meetings of employees held at the company's various plants and offices. Conducting the meetings were Richard A. Diercks, director of personnel, and Alan M. Kennedy, director of profit sharing.

Supersweet Feeds is a division of International.

Mr. Diercks explained that the figure included the company's program of profit sharing, group life insurance, hospital-surgical insurance for active and retired employees, educational assistance, scholarships, recreation programs and other programs.

The profit sharing retirement plan of International and its affiliated companies was explained by Mr. Kennedy, who stated that "in just six years, the sum of $3,378,000 has been set aside by the company and employees jointly for future benefits."

These funds are held in trust for employees to provide retirement, death and severanee benefits. Each year employees contribute 2% of their base pay not to exceed $120 and the company contributes 10% of its profits after taxes.

Employees become eligible for profit sharing after four years with the company. "The average employee has accumulated about $2,033 in his account since the program was started in 1953, but some of the men and women with many years of service already have more than twice that much," Mr. Kennedy said.

RECORD SHIPMENT—When Nichols, Inc., Exeter, N.H., poultry breeding firm, consigned an air shipment of 60,000 hatching eggs to California recently, the shipment was the largest of its kind in the history of the Logan Airport in East Boston, Mass. The eggs were shipped via the Flying Tiger Lines to the Grange Co., Modesto, Cal., feed manufacturer, hatchery and grower. The eggs will hatch into "108"-type pullets, and their offspring will number about 3.6 million broilers.

GRAIN FIRM INCORPORATES

DOVER, DEL. — Palmyra-Modesto Grain Co. has filed a charter of incorporation with the secretary of state's office here. Authorized capital stock of the firm is 2,000 shares of stock, no par value. Corporation Service Co., Delaware Trust Bldg., Wilmington, Del., is serving as the principal office.

FAT ADDITION SYSTEMS are available

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These systems are available in: OS - "on stream" and OB - "on bin." Each is custom-designed for specific application involving rates as low as 4,300 and as high as 60,000 lb. per hour. The "OS" or "on stream" system is required whenever it is necessary to add fat to pellets on a continuous basis as they discharge from the cooler or grading shoe.

Method of Operation

In both systems, good hard pellets pass through a cascade spout, receiving a controlled addition of fat as they tumble in front of the spray manifolds. They then move by gravity into the large retention drum. The drum rotates slowly, giving adequate time for the pellets to cool and absorb the fat. At the discharge end of the drum, the pellets pass through a scalping screen where any agglomerates are separated and discharged. When percentages of more than 5% are being added, the pellets drop into follow-up retention bins to allow longer penetration time.

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For complete details write for Advance Specification Sheet 207 and Bulletin F-40.

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Pfizer International Names Vice President

NEW YORK — Election of Conrad G. Hurlimann as administrative vice president of Pfizer International was announced recently by John J. Powers, Jr., president and chairman of the board. Pfizer International conducts manufacturing and sales in more than 100 countries abroad for the parent pharmaceutical and chemical company, Chas. Pfizer & Co., Inc., New York.

Mr. Hurlimann joined Pfizer in 1956 as regional director for southern Europe and was elected a vice president and director of Pfizer International in October, 1957.

Before joining Pfizer, Mr. Hurlimann was executive vice president and treasurer of Diethelm and Keller (U.S.A.) Ltd. He has had more than 15 years experience in international management and marketing in both the U.S. and Europe.

A minister was accustomed to reading his sermons, which he placed on the pulpit about half an hour before the church service. One young member noted this habit, and one day before the congregation arrived, removed the last page from the manuscript.

The minister read the sermon, as usual. The last line of what now was the final page had these words, "So Adam said to Eve . . . "

Lifting the page, there was, of course, no following manuscript. He rifled through the other pages a moment, gained a little time by repeating, "So Adam said to Eve . . . " and then in a low voice, but one which the amplifying system carried to every part of the room, added " . . . there seems to be a leaf missing."

◆ ◆ ◆

In an attempt to reform the village drunk the local preacher invited him to take a ride one evening. After the two drove around for awhile the preacher thought he'd hit on a way to illustrate his point. Stopping his car on a hill overlooking two distilleries which were ablaze with light, the minister pointed down and said, "Now, look, Lushwell, don't you see that you haven't a chance of drinking all the bourbon they can make?"

"No, I guess not," replied Lushwell. Then he brightened. "But, brother, you got to admit that I got 'em working nights."

◆ ◆ ◆

Women no longer bind their feet in China; the custom has been transferred to America.

◆ ◆ ◆

Employer: "Did you tell that man I'd gone to South America, as I told you to, James?"

Office boy: "Yes, sir. I told him you started this morning."

Employer: "That's a good boy. And what did he say?"

Office boy: "He wanted to know when you'd be back, and I told him 'After lunch,' sir."

◆ ◆ ◆

The modern husband: "This cake is simply delicious, dear. Did you buy it yourself?"

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Each day, more and more feeders are demanding DYNAFAC PREMIX in their feeds. They want every bit of advantage that modern agricultural science can offer—not just *some* of it!

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2. For the control of scours of bacterial origin.

CATTLE AND CALVES:
1. For promoting growth, feed conversion, bloom, and on full feed earlier.
2. As an aid in minimizing the occurrence of feed lot bloat due to high consumption of concentrate.
3. As an aid in minimizing the occurrence of feed lot founder due to high consumption of concentrate.

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JOE BROOKS

BY AL P. NELSON

Ideas Can Stir Up Enthusiasum

Mary Brooks came to the stairway of the Brooks home about nine that morning and rang a small bell. "Joe," she called. "Breakfast is ready. You'll have to hurry. We are all going to church, you know. The twins are all dressed."

There was a grunt and a groan from upstairs and a muffled "All right."

"Let's sit down and eat, children," Mary announced to the twins. "Then we'll be through when Daddy comes down and we can wait on him hand and foot and hurry him along."

Jimmie, who was nine, looked puzzled. "Gee," he said, "why is Pop so hard to get up on Sundays? Other days, he's up too early. He always comes to the door of our bedroom and yells 'Daylight in the swamp!' What does that mean, Mommie?"

Mary smiled, her cheeks red from the hustle of getting breakfast. " 'Daylight in the swamp' is the get-up call which lumberjacks used in the northwoods to get the men up before dawn. Your daddy's father used to work in lumber camps and that's why Daddy uses that phrase."

"But he gets kind of mad when we wake him early on Sunday," put in Joe, Jr.

Once more Mary smiled. "It's the only day he can sleep late, boys. He works hard all week long and has only this one day to himself."

Jimmie spooned his wheat cereal. "Well, I can't figure it out. He's always after us to go to Sunday School, and yet he skips church lots of Sundays."

"But he's going today," Mary defended. "He promised us he'd go."

She got up from the table went to the stairs and called, "Joe, are you coming?"

Another grunt. "Yeah, I'm comin'. I'm just finishing shaving. You don't want me to hurry and cut myself, do you?"

A little later Joe came down yawning. He was shaved, wore a bathrobe and started looking around for the Sunday paper. He found it and came to the table.

"Wow, I sure like to sleep on Sunday morning. Why can't they have church about three in the afternoon? Then a fellow would be rested up enough."

Mary poured a cup of coffee for Joe. She looked at him severely. "Joe," she said, "you said you were going to church with us today. Are you trying to get out of it?"

"Oh, no, no," he replied quickly. "I did promise, didn't I? Yes, I'll go. Is my suit pressed—the good blue one?"

"Yes, and your necktie, too. And I brushed your hat and cleaned your rubbers. I've even got the money in the church envelope."

"Say, that's a system," Joe mumbled, eating his toast. "I could use a little of that around my office."

He glanced at his newspaper, read for a few minutes. "Oh, Mary," he called excitedly, "listen to this. There's an article and pictures about a farmer who has a small farm, and he says he doesn't believe all this bunk about the small farmer being doomed. He and his wife operate the farm alone and he netted $3,750 cash income last year. Wow! That's really something."

"I'll read it after church," Mary said hurriedly, pouring Joe his second cup of coffee. "Put on a little speed now. We've got just half an hour to get to church."

Joe Gets an Idea

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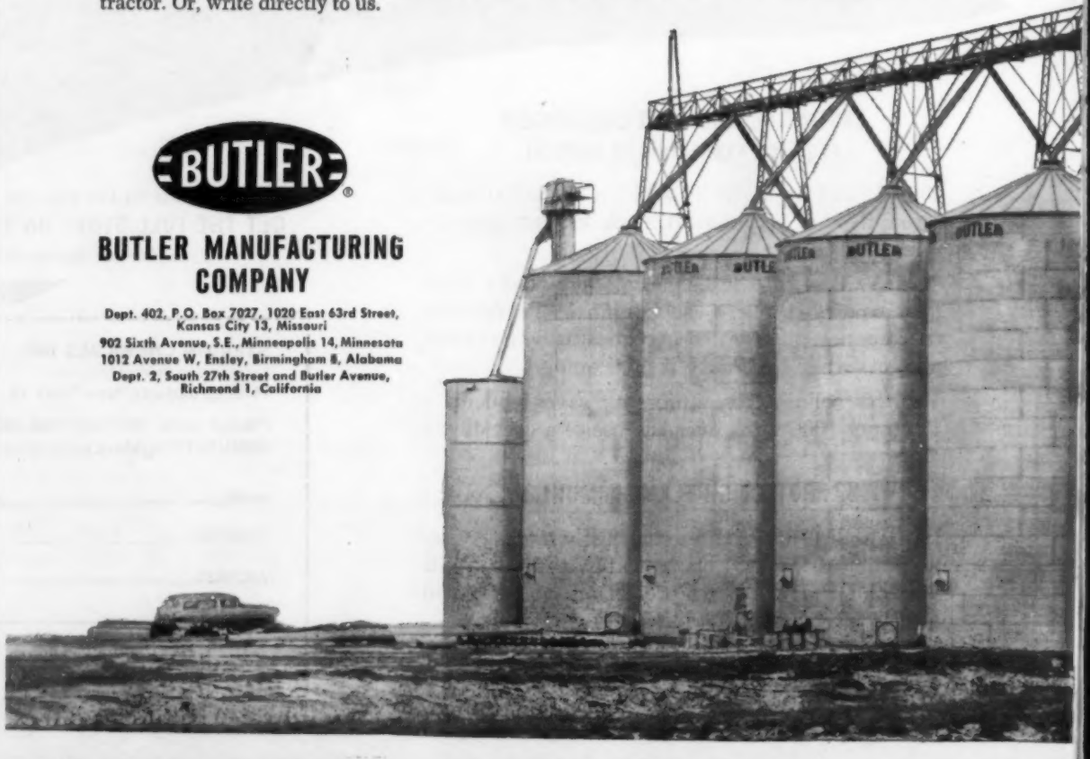

adays on a small farm," Joe said excitedly. "This fellow has six acres of tobacco, 20 milk cows, 2,000 chickens and 50 hogs. Say, I wonder if I could make a survey of my trade territory and compile some case histories on customers who are doing all right on small farms, and detail the methods they use. I could take pictures of them, maybe run a few ads, post copies around the mill—and maybe have a Small Farm Management session at the mill. Oh, I wish I could go to work on it right away."

Mary really looked severely at Joe now. "Joe Brooks, that planning can wait until this afternoon. You promised us you'd go to church today, and—"

"I know," Joe pleaded, "but you don't know the excitement of an idea when it gets churning around in your head. You just itch to get at it, and—"

"I have my ideas churning now and then, too," Mary said sharply, "and I have to hold them off while I wait on the men folks around here. Sure, I know what it is. YOU are going to church, or I'll go on strike around here. A promise is a promise."

"All right, I'll go!" Joe announced firmly. "I'll show you I can discipline myself. But I'll take a notebook along and a pencil so I can write down any ramifications of my idea as they come up when the minister is talking."

"No, you won't," Mary said firmly. "I will not have the whole congregation gossiping that my husband is so bored with the church that he makes business memos during the sermon. Why that would be terrible."

Joe looked miserable. "Gee, the government restricts a business man, and a man's family restricts him when he gets an idea. It's a wonder all of us don't have nervous breakdowns."

"Well, you will have a nervous breakdown if you don't go to church once in a while, Joe Brooks. Any business man who can't get his work done in six days a week is a poor business manager. That's what I think. The Sabbath is for going to church, and relaxing, and paying attention to one's family."

Joe sat up as if someone had slapped him on a bare buttock. "You think I'm a poor manager, eh! Well, I'll show you. I'll go to church and work like heck on my business idea when I get home."

And with that he got up from the table and ran upstairs to change clothes.

"Gee," said Joe, Jr., "Pop is mad, but it makes him hurry, doesn't it? He's got it easy. He spends one hour in church, and then he can go home. We kids have to go to Sunday School after church."

"Yeah," agreed Jimmie peevishly. "Pop's got it easy."

Mary sighed. "Yes, but I haven't it easy. Nobody ever thinks of that. I have to spend all of my waking hours salving male egos and nursing their complaints all day long. What a job!"

"Mom," asked Joe, Jr. curiously, "what's a male ego?"

"It's something most men have too much of," Mary said with the philosophy of 12 married years behind her. "And it can either make them or break them, depending on how they handle it."

"Oh, I see," Joe, Jr., said seriously. But he didn't.

George A. Hajney

JOINS OAKES FIRM—George Arthur Hajney has joined the Oakes Manufacturing Co., Tipton, Ind., as territory representative in Minnesota, North Dakota, South Dakota and western Canada. Mr. Hajney has been associated with agricultural work for the last 12 years. He will be headquartered in Minneapolis.

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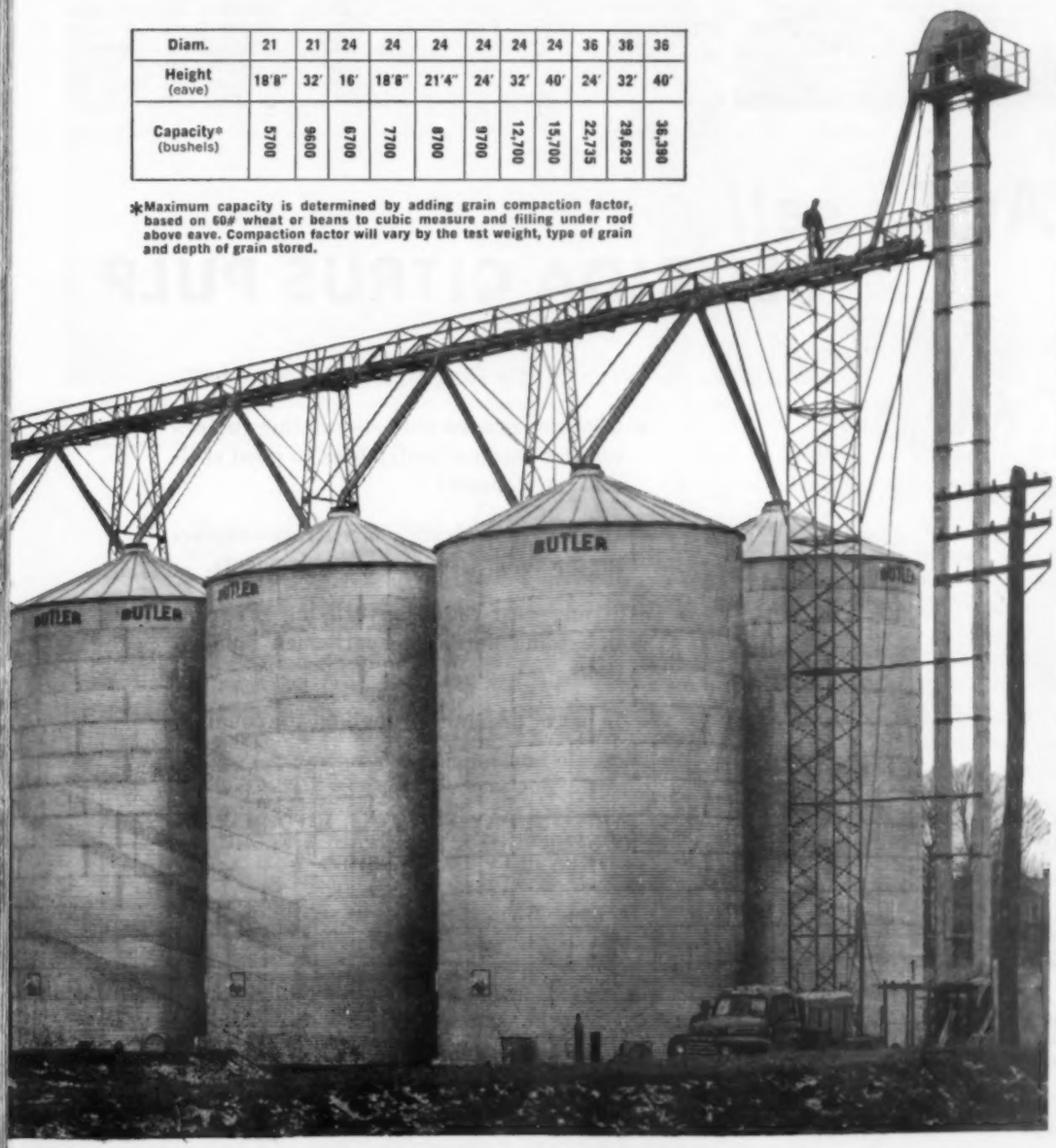
Height (eave)	18'8"	32'	16'	18'8"	21'4"	24'	32'	40'	24'	32'	40'
Capacity* (bushels)	5700	9600	6700	7700	8700	9700	12,700	15,700	22,735	29,625	36,390

*Maximum capacity is determined by adding grain compaction factor, based on 60# wheat or beans to cubic measure and filling under roof above eave. Compaction factor will vary by the test weight, type of grain and depth of grain stored.



Hot Spot Detectors in New Neptune Division

NEW YORK—Hot Spot Detectors, Inc., Des Moines, Iowa, which makes temperature monitoring and aeration devices for the grain industry and other markets, has become part of a new electro-mechanical division of Neptune Meter Co., New York.

Two other Neptune subsidiaries which make up the new division are Revere Corporation of America and the Electronic Signal Co. The formation of the new division was announced by William H. Cochrane, Neptune president.

Head of the new division will be Don C. Stixrood, now president of Hot Spot Detectors. Mr. Stixrood will retain his present position at Hot Spot. He also has been elected president of Revere Corporation.

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Berg-Designed Storage Installations to Serve Pakistani Training Plan

FT. WAYNE, IND.—Paul O. Berg, Ft. Wayne consulting engineer, recently completed engineering design work on two 15,000-ton grain storage installations which will serve as training projects for the country of Pakistan.

Drawings are now in Pakistan for obtaining contractors' bids, and work is expected to get under way in July.

The two installations, which are to go up in Karachi, West Pakistan, and Chittagong, East Pakistan, are intended to train the Pakistani in grain storage construction and operation. A training program is included as part of the project work.

Mr. Berg received the contract for the facilities in 1955 as part of the International Cooperation Administration Point Four program of the U.S. State Department. Since then, he has made two trips to Pakistan, one in June of 1955 and the other in January, 1958. He plans a third trip sometime this summer.

Visiting him here recently was M. M. Husain, executive engineer for Pakistan's Ministry of Food. Mr. Husain spent a week with Mr. Berg to get a briefing on plans and specifications for the installations.

The two installations will include ship unloading equipment and loading equipment in addition to the usual railroad car grain handling equipment.

One unusual engineering problem was the fact that the soil at Chittagong is a silt deposit of centuries which has reached a depth of 150 ft.

"It presents some piling problems," Mr. Berg said.

INTERNATIONAL COOPERATION—Looking over plans for two 15,000-ton grain storage facilities to be constructed in Pakistan are Paul O. Berg (right), Ft. Wayne, Ind., consulting engineer, M. M. Husain (center), executive engineer for Pakistan's Ministry for Food, and Don Petry, project leader on contract for Mr. Berg.

FEWER IOWA FARMS

DES MOINES, IOWA—The number of farms in Iowa in 1958 was the smallest in about 75 years, according to Clyde Spry, secretary of agriculture in Iowa. He said there were 193,000 farms in operation as compared with 195,000 in 1957, and added that the steady decline in recent years has averaged about 2,000 farms a year. The average size of farms, however, had increased from 154 acres in 1934 to 181 acres in 1958.

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40 Bushel
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Stands up to roughest abuse from livestock and weather! Heavy rust-resisting Armco Zincgrip; sturdy angle iron bracing. It's round — fills from one position; gives maximum eating room. 12 oversize doors — plenty of headroom for largest hogs. Adjustable feed flow . . . no bridging. Heavy steel brace around top keeps feeder in perfect round; snug-fitting top slips on and off easily. Weatherproof . . . rodent-proof — eliminates feed waste. Your best bet yet for increased sales and more profits!
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P.O. BOX 1459 • WINTER HAVEN • FLORIDA • DEPT.
THE SUNSHINE FEED FOR CATTLE

Current Florida Citrus Pulp ad appearing in Eastern dairy publications, total circulation 1,566,578.

- Top quality feed, high in T.D.N.—74.9%.
- Contains proven milk stimulating factors regular feeding contributes to good skeletal development.
- High carbohydrate concentrate—replacing up to 50% of grain requirements.
- Strong year-round advertising program in leading dairy and cattlemen publications.
- In heavy demand throughout the country.

WRITE TODAY FOR FULL INFORMATION CONCERNING A PROFITABLE FLORIDA CITRUS PULP DEALERSHIP.

Florida Citrus Pulp
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P.O. BOX 1459 • WINTER HAVEN • FLORIDA • DEPT. H
THE SUNSHINE FEED FOR CATTLE

"Trained Ful-O-Pep men are helping dealers make the switch to bulk feeds,"

says **G. P. MOSELEY,** *Manager of Southern Feed Division of The Quaker Oats Company, in this report to Ful-O-Pep Feed Dealers*

G. P. MOSELEY started 22 years ago as an office boy in the Memphis Feed Plant of The Quaker Oats Company. Advancing through the Feed Sales Department, he was promoted to District Manager in 1953 and Manager of Ful-O-Pep's Southern Feed Division in 1956.

"We at Quaker take the position that our growth is dependent on the feed dealer. We feel this is largely responsible for the 'member-of-the-family' feeling that exists among our Ful-O-Pep Dealers.

"We are dedicated to providing 'know-how' that helps our dealers meet today's changing conditions. Take the matter of bulk handling of feeds. Here's the way for the dealer to reduce handling costs and speed up service to his customers. Our men are trained to help Ful-O-Pep Dealers finance and install bulk handling facilities, as well as grinding and mixing equipment for combining grain and concentrates. In this way, the dealer puts out a finished feed at a price that is more profitable both to him and the feeder.

"Ful-O-Pep is also counselling dealers on credit, financing, and sales promotion problems. This close association and cooperation between the Ful-O-Pep salesman and the dealer is placing him in a better position to sell and service today's feeders.

"Positive proof that Ful-O-Pep's aggressive dealer development program is paying off is shown by the increased volume of tonnage our dealers are doing each month.

"So come on and join the constantly growing members of the Ful-O-Pep family of dealers and cash in on the opportunities for greater feed sales and profits."

Geo. P. Moseley

FUL-O-PEP FEEDS

made by The Quaker Oats Company

We invite Feed Dealers to visit our modern Feed Mills located at: Cedar Rapids, Ia. Memphis, Tenn. • St. Joseph, Mo. • Sherman, Tex. • Shiremanstown, Pa. • Lawrenceburg, Ind. • Chattanooga, Tenn. • Tampa, Fla. • Asheville, N. C. • Jasper, Ala.

WORTH LOOKING INTO

NEW PRODUCTS • NEW SERVICE • NEW LITERATURE

DESCRIPTIONS OF NEW AND IMPROVED PRODUCTS AND SERVICES PROVIDED BY MANUFACTURERS AND SUPPLIERS ARE PRESENTED IN BRIEF FORM. FOR ADDITIONAL INFORMATION, PLEASE USE THE ACCOMPANYING COUPON.

No. 7474—Egg Oiling Method

The Sta-Good method of oiling eggs by an aerosol container, now covered by a U.S. patent, has been announced by Anderson Box Co., exclusive distributor. Manufactured by Liqua-Mix, Inc., the pressurized can contains sterile oil, diluent and aerosol propellant. As the egg case is being filled, one light spray across each flat seals

the egg quality, Anderson claims. According to company literature, the product is formulated to eliminate "oily shine," and the oil coating triples shelf life of the eggs. One 16-oz. can protects more than 1,200 dozen eggs, it is claimed. For details, check No. 7474 on the coupon and mail.

No. 7477—Feed Fortification

Specifide, Inc., announces two feed fortification products to be called "Dyna-Ferm Hog MP" and "Dyna-Ferm Poultry MP." Designed for the small to medium feed manufacturer, both products are concentrated sources of vitamins, antibiotics, minerals, enzymes, antioxidants and unidentified growth factors, the company says. The premixes can be adapted to all types of hog and poultry rations, the company says, by adjusting the level of the Dyna-Ferm MP's to meet the fortification requirements of different feeds. One of the ingredients in the products is Tri-Ferm, a bacterial and fungal fermentation culture which is claimed to produce important enzymes such as amylases, proteases and cellulases. For details, check No. 7477 on the coupon and mail to this publication.

No. 7479—Power Loader

A heavy-duty power loader, with 1,900 lb. lift capacity has been introduced by International Harvester Co. Called the McCormick No. 50, the unit is wider, heavier and more streamlined than past models, the company says. The loader manure fork and material bucket measures 60 in. across and overlaps the tractor's wheel tracts to insure traction, the company says. It is equipped with ½ cu. yd. bucket. Lift arms are made of solid plate steel with rigid cross bracing. The loader has a 9 ft. 2 in. dump height. It is regularly equipped with a 60 in. manure fork having ½

cu. yd. capacity. The fork carries nine heat-treated, alloy steel tines and can be converted to a 11½ cu. ft. materials bucket, with a tine cover attachment, the company says. For details, check No. 7479 on the coupon and mail.

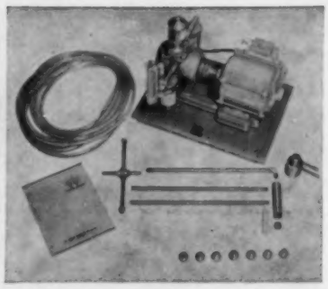
No. 7480—Testing Instrument

Seedburo Equipment Co. has been appointed exclusive distributor for Agtron, a portable electronic testing instrument which grades malting barley (and other materials) by color, automatically giving the sample a numerical rating for comparison and reference. The Agtron can be oper-

ated at a desk, table or work bench, requiring only about 1 cu. ft. of space. No special knowledge or skill is required in operating the unit, the company says, and the sample to be tested for color is simply set into the receptacle at the top of the instrument. The meter indicator points to the precise numerical color rating of the sample being tested. Details can be obtained by checking No. 7480 on the coupon and mailing.

No. 7475—Dust Sampler

The Iso-Kinetic Dust Sampler, designed to measure dust particles discharged from dust control equipment and to determine equipment operating efficiency, has been introduced by the Day Co. The sampler will accurately measure grains of dust passing through dust control ducts, or will measure particles being discharged from dust control equipment, such as cyclones or other equipment which exhaust to the atmosphere, the company says. The complete unit consists of a rotometer, air-line filter, air pump, oil reservoir, oil trap, electric motor, plastic air-line tubing, rod handle, graduated rod, filter thimbles,



thimble holder, thimble ring seals and nozzles. It comes complete with instructions and charts. Check No. 7475 and mail.

No. 7478—Bulletins On Eastrone

Two bulletins on Eastrone, a water hormonal agent for poultry, have been published by Eastern Laboratories, Inc. Bulletin No. 1 is a technical data sheet containing research results. "Questions and Answers," the other bulletin, explains the product, its use and details about storage, availability and packaging. For copies, check No. 7478 on the coupon and mail to this publication.

No. 7471—Poultry Watering Trough

A poultry watering trough that cannot overflow has been introduced by Leach Manufacturing Co. Called the Lemanco Continuous Easy-To-Clean

Myvamix®
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W. M. GILLIES, INC.
244 California Street
San Francisco 11, California

GOOD-LIFE CHEMICALS, INC.
310 South First Street
Effingham, Illinois

HOLT PRODUCTS COMPANY
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Milwaukee 1, Wisconsin

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CHARLES ALBERT SMITH, LIMITED
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And, of course, you can get it directly from *Distillation Products Industries,* Rochester 3, N. Y. Sales offices: New York and Chicago.

producers of
Myvamix
Vitamin E

Distillation Products Industries
is a division of
Eastman Kodak Company

Send me information on the items marked:

- ☐ No. 7471—Poultry Watering Trough
- ☐ No. 7474—Egg Oiling Method
- ☐ No. 7475—Dust Sampler
- ☐ No. 7476—Retractable Top
- ☐ No. 7477—Feed Fortification
- ☐ No. 7478—Bulletins on Eastrone
- ☐ No. 7479—Power Loader
- ☐ No. 7480—Testing Instrument
- ☐ No. 7481—Magnesium Bins
- ☐ No. 7482—Pig Parlor Cleaner
- ☐ No. 7483—Equipment Leasing Plan

(PLEASE PRINT OR TYPE)

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Feedstuffs

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watering trough, the unit can be installed to fit the requirements of any house with only two to four waterers needed. The troughs are made of 16 gauge galvanized steel with 2 oz. zinc coating and are fabricated in 10 ft. lengths so the trough can be sectioned in multiples of 10 ft. with smaller joints of 4 ft. and 2 ft. sections, the company says. A large overflow drain pipe below the level of the trough sides prevents any possibility of overflow, the company says. Details are available in brochure form, check No. 7471 on the coupon and mail.

No. 7476—Retractable Top

Productive Acres Manufacturing Co. has introduced a hydraulic controlled retractable top for its Back-Saver bulk truck line. The top is

raised or lowered by pulling or pushing a valve. The metal top insures the feeder his full load and saves labor and time, the company claims. More information is available by checking No. 7476 on the coupon and mailing to this publication.

No. 7483—Equipment Leasing Plan

Nationwide Leasing Co. announces a special package leasing plan under which any combination of equipment may be considered one package and leased as a unit for three to five years. The package lease plan permits large and small firms to acquire $10,000 to $50,000 or more in equipment without capital investment, the company says. The plan was developed to meet the need of milling firms to expand and modernize production facilities without depleting their liquid working capital, the company says, and any combination of equipment may be lumped together in one package, under one lease and with one monthly lease payment. For details, check No. 7483 on the coupon and mail.

No. 7481—Magnesium Bins

Tote Systems, Inc., announces the addition of magnesium Tote Bins as standard items in the Tote line. The bins are now available in four different materials — aluminum, carbon steel, stainless steel and magnesium. The magnesium containers are available in 42, 74, 90, 98 and 110 cu. ft. capacities. Other special sizes are fabricated upon request, the company says. Check No. 7481 on the coupon and mail for details.

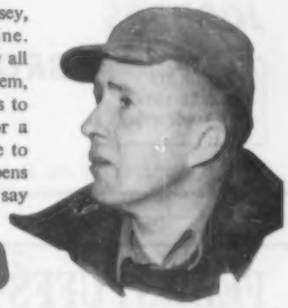
No. 7482—Pig Parlor Cleaner

Manufacture of a shuttle-stroke cleaner for pig parlors and hog lots

Growers report . . .

LIPAMONE® WORKS BETTER!

"LIPAMONE is way ahead," says Ernest Cressey, Floggy Meadow Road, Gorham, Maine. "When they come in to pill 'em, birds fly all over . . . bust equipment. After you pill 'em, reaction sets in. You give them antibiotics to overcome the stress. This is all right for a couple days, then wears off and you have to fight to keep feed in 'em. None of this happens when I use LIPAMONE. As a grower, I say LIPAMONE is way ahead."



"It's in-the-feed"

Write, wire or phone for more details.

White's LIPAMONE®

AMERICAN SCIENTIFIC LABORATORIES, Inc., Madison 1, Wis.

Strong Scott

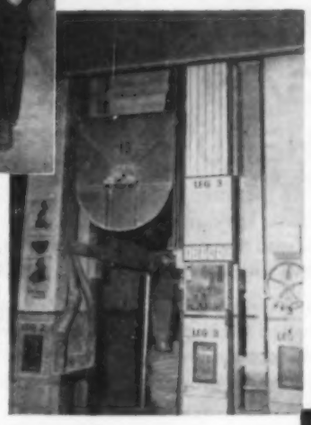
"There's a good reason why . . .

WE LIKE STRONG-SCOTT EQUIPMENT"

says George Simpson, General Manager of Des Moines Oat Products Co.

The Des Moines Oat Products Co. of Des Moines, Iowa produces many varieties of oat products. A modern office plus complete mill and elevator facilities serve the area.

Herbert Warren, operator, finds the Strong-Scott Hammermill easy to operate. The capacity is extremely satisfactory.



A 2-ton Strong-Scott Triple Action Mixer with over-head installation offers an ideal working arrangement for a double sack-off operation.

"We produce a variety of oat products that must be accurately ground and mixed. In the months we've been operating our new Strong-Scott Hammermill in conjunction with the Triple Action Mixer our efficiency has increased, our capacity is tops and we have a trouble free, smooth-running plant.

"We are a subsidiary of Blatchford Calf Meal Co., Waukegan, Illinois where Strong-Scott equipment has been in use for years. Like them," concluded George, "we must consistently turn out high quality products, and our Strong-Scott equipment helps us do just that."

Equipment Designed for Better Processing

The Strong Scott Mfg. Co.

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☐ Hammermill ☐ Triple Action Mixer

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IRRADIATED DRY YEAST
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"Serving the Feed Industry Since 1905"

FEEDSTUFFS—*LEADER in its field*
More advertisers use FEEDSTUFFS than any other publication in the feed industry

with either mechanical or hydraulic drive power has been announced by James Manufacturing Co. The Jamesway cleaner is equipped for hog lot cleaning with a high-speed Liquimatic elevator which carries the semi-liquid droppings quickly into the spreader, the company says. The unit travels more than 94 ft. a minute. When hogs must cross a central gutter to get from the bedded area to the feeders and waterers, the droppings are usually placed within a few feet of the cleaner. When the cleaning gutter is placed outside the fence (as in the photo), proper placement of hog shelters will get most of the droppings, the company says. Check No. 7482 on the coupon and mail to this publication for details.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 7444—Stilbestrol product, Eastern Laboratories, Inc.

No. 7445—Reprint price list, American Poultry & Hatchery Federation.

No. 7446—Suspended - conveyor weigher, Thayer Scale Corp.

No. 7447—Automatic checkweigher, Toledo Scale Corp.

No. 7448—Bin design booklet, Sprout, Waldron & Co., Inc.

No. 7449—Sodium phosphate bulletin, Monsanto Chemical Co.

No. 7450—Enzyme feed fortifier, Pabst Brewing Co.

No. 7451—Temperature system, Rolfes Electronics Corp., division of Rolfes Grain Aeration Companies.

No. 7452—Equipment leasing study, Foundation for Management Research.

No. 7453—Bag tear strip, Union Bag-Camp Paper Corp.

No. 7454—Bin level indicator, Bin-Dicator Co.

No. 7455—Bulk transport, Dorsey Trailers.

No. 7456—Egg cooler humidifier, Master-Bilt Manufacturing Co.

No. 7457—Pig feeder, Fairfield Engineering & Manufacturing Co.

No. 7458—Poultry catalog, Babcock Poultry Farms, Inc.

No. 7459—Pneumatic handling equipment, Ripco, Inc.

No. 7460—Hydraulic drive mechanism, Sprout, Waldron & Co., Inc.

No. 7461—Packaged feeder, Fuller Co.

No. 7462—Vibration inducer, Martin Engineering Co.

No. 7463—Egg vendor, Tobias Enterprises.

No. 7464 — Overhead roller mill, Automatic Equipment Manufacturing Co.

No. 7465 — Automatic equipment bulletins, Thayer Scale Corp.

No. 7466 — Carbide cutting edge, Gustaf Peterson, Inc.

No. 7467—Equipment catalog, Syntron Co.

No. 7468—Hammermill, J. B. Sedberry, Inc.

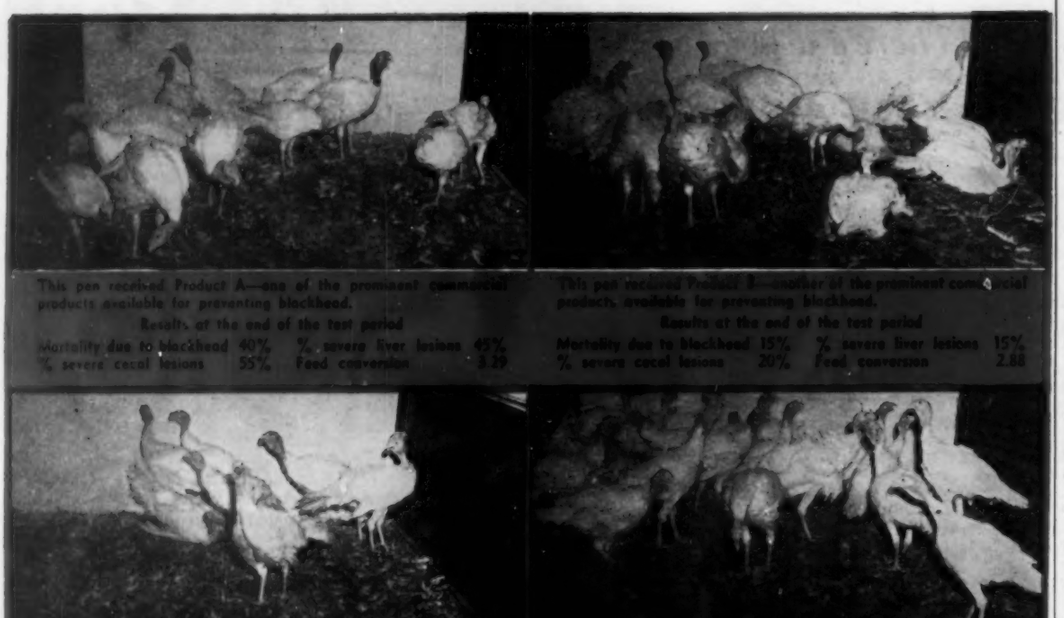
No. 7469 — Air vibrator, National Air Vibrator Co.

No. 7470 — Bird repellent light, Trippe Manufacturing Co.

No. 7472 — Belt conveyor bulletin, Sprout, Waldron & Co., Inc.

WHICH IS THE CARB-O-SEP PEN?

Patent Pending



This pen received Product A—one of the prominent commercial products available for preventing blackhead.
Results at the end of the test period
Mortality due to blackhead 40% % severe liver lesions 45%
% severe cecal lesions 55% Feed conversion 3.39

This pen received Product B—another of the prominent commercial products available for preventing blackhead.
Results at the end of the test period
Mortality due to blackhead 15% % severe liver lesions 15%
% severe cecal lesions 20% Feed conversion 2.88

This Control Pen received no blackhead preventive product
Results at the end of the test period
Mortality due to blackhead 60% % severe liver lesions 60%
% severe cecal lesions 60% Feed conversion 4.16

This pen received CARB-O-SEP.
Results at the end of the test period
Mortality due to blackhead 0 % severe liver lesions 0
% severe cecal lesions 0 Feed conversion 2.35

—Abstracted From Test C-158

CARB-O-SEP AGAIN PROVES ITS SUPERIOR BLACKHEAD PROTECTION

The birds in each of the above pens are the same age—15 weeks. The same number of birds were started in each pen. They were raised under exactly identical conditions—except for the blackhead preventive used. The pictures and the statistical results convincingly prove the superior efficacy of CARB-O-SEP.

And, in regular commercial use, too, during the tough blackhead season of 1958, CARB-O-SEP-protected birds came through in fine shape . . . without increasing the dosage level over the original recommendations. As one big Virginia grower put it, "We didn't know what blackhead was this year."

PUT "PROVEN BLACKHEAD PROTECTION" IN YOUR TURKEY MASH

For more information, write Dept FS-5

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IN CANADA—WHITMOYER LABORATORIES, LTD., PORT CREDIT (TORONTO TWP.), ONTARIO

W-W... ORIGINATORS OF HARD-SURFACED HAMMERS...

...always have a cutting edge

W-W was the first to develop hard-surfaced hammers for hammermills. They are still the best and give the longest life because as they wear, they maintain their cutting edge. Tungsten Carbide—hardest metal known—is used on cutting edge.

Liberal Terms . . . Write

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DR. G. F. HEUSER
Director
Stonemo Poultry Research Farm

A career poultryman, college professor, author and editor, Dr. Heuser has been widely acclaimed for his work, his research, and contributions to advances in poultry science.

Dr. Heuser was the third person in the U.S. to receive a Ph.D. in Poultry Science (Cornell, 1918), and for 35 years was Professor of Poultry Husbandry at Cornell University. He is a former editor of both Poultry Science and World Poultry Science Journal.

FILM AVAILABLE AT NO COST

An educational 25 minute color 16 mm. film has been prepared by the Stone Mountain Grit Company. You will see how granite is mined, crushed, and distributed as granite grit. You will visit the Stonemo Poultry Research Farm, and see firsthand how granite grit helps increase egg and poultry meat production. This film will be lent at no cost to responsible groups. When writing, please use your letterhead and indicate a preference of several dates.

Sta-Kleen NESTING MATERIAL

Another fine product to increase poultry profits. Write for full data.

STONE MOUNTAIN GRIT COMPANY, INC.
Lithonia, Georgia

#2 IN THE SERIES OF

Questions and Answers About Granite Grit

Question: **What are the main benefits of grit feeding that can easily and accurately be measured?**

Dr. Heuser: The two main benefits are increased production (either weight or number of eggs) and feed efficiency. Increase in weight is especially important in broiler production.

Question: **Are there any other important values of feeding grit?**

Dr. Heuser: Yes, an insurance value. As already indicated, the gains usually are not large, but might be considerable under some situations or under stress. The feeding of grit might be of advantage to meet adverse conditions and act as insurance to counteract some of the factors which might be deficient and hence detrimental. The possible loss would be small (the cost of feeding the grit) but the gain might be considerable. In other words, there is little to lose, but there might be much to gain.

A leading poultry nutritionist has recently stated: "A couple of years ago we wondered about the need for grit in the case of broilers being fed all-mash or pelleted diets. However, we now believe that it is wise to feed grit to broilers and other classes of poultry even though they are on all-mash feeds. We have encountered several field cases where birds have become impacted with shavings and other litters, when no grit was fed. I believe that in some cases it might be possible to do a satisfactory job without grit in broilers and layers fed all-mash diets, but it seems to me since there is always a danger of the birds consuming litter, it is good insurance to have grit available."

Do you have a question regarding the feeding of granite grit? If you do, please address it to Dr. G. F. Heuser, c/o Stonemo Poultry Research Farm, Lithonia, Georgia.

Birdseye view of the Stone Mountain Grit Company's Poultry Research Farm, Lithonia, Georgia. Here constant feeding experiments are being made by Nutritionists and Research Workers to help you get Maximum Nutritional Values from every ton of poultry feed you buy.

STONEMO GRANITE GRIT—*The Grit with the* **"EXTRA GRINDING SURFACES"**

Vertical Integration of Swine Production and Marketing

"In the long run, the feed dealer appears not to be a major contender for the role of the integrator. . . . The packer stands out as a likely contender. . . . Each segment of the industry may make needed adjustments and probably will not be integrated—10 to 15% at the most in the next 10 years."

By Clifton B. Cox
Professor, Agricultural Economics
Purdue University

Vertical integration can take place only when science has replaced art in an industry. When science has taken over, control can be separated from operations so that decisions can be made for any or all functions by one company or management group. If the decisions are made by one company or management group for two or more of the links in the chain of suppliers, producers, assemblers, processors and distributors (which includes retailing), they are said to be vertically integrated.

Financing alone, providing a market alone or providing other needed services are not in themselves integration. As long as the producers or the operators of firms in any one of the links are left free to make the decisions, this link is not considered integrated.

Why does integration take place? Integration takes place to decrease risks and/or to increase the profits of the integrator. The livestock and meat industry may be integrated somewhat when one or more of the following conditions are present:

1. Technology is available that has not been put into use.

Major breakthroughs in increased feed efficiency or economies of scale could encourage change because early adapters of cost-reducing techniques have made quick changes profitable. Although this has been a major factor in the integration of the poultry industry, it does not appear to be a major factor in the livestock industry.

2. Quality of the product does not meet consumer desires.

If firms will provide consumers with the desired product, consumers will usually reward them with higher prices. Research at Purdue University indicates that some consumers will pay more for lean-type pork. With a set of higher prices for meat-type pork cuts, 40% of the consumers in a recent Purdue research project were willing to pay $1.60 cwt. liveweight more even after taking out the inaccuracies of grading and the cost of grading. With a relatively small packer in Indiana that may kill 1,000 meat-type hogs per day, this would mean over $3,000 additional per day for the meat-type pork. This probably is sufficient incentive to seriously consider integration if he were able to keep all of it.

Under present marketing conditions, the differences in value of hogs to the farmer because of grade are about 50¢ cwt. This results from the difference in yield of lean cuts rather than from consumer preference for these lean cuts. If the pork products are processed into meat-type products, there appears to be sufficient profit for the retailer, processor and farmer to change the marketing structure. However, if the product is not differentiated, it seems that very little will be done to change the present marketing system.

3. Wide fluctuations occur in supply.

Livestock production and prices have been noted for cyclical movements and seasonal movements as well as extreme fluctuations in receipts and prices at the market place. With 200 lb. hogs bringing $10 cwt. three years ago and $25 cwt. during the past year, it appears that profits may be possible from some sort of orderly marketing process. Packers have said they were willing to pay an additional $1 premium for hogs if they could specify the time of delivery.

4. There is no dependable market outlet.

With more than 4,000 markets available to livestock farmers in the U.S., this appears not to be a major problem in the livestock industry. However, in other agricultural commodities, the desire for a dependable outlet has been the force behind the integration of production and marketing.

WHO MAY BE INTEGRATOR?—Basically, the integrator will be the one that expects to make a profit from doing so. Let's take a look at the various possible integrators.

1. Feed dealer—This individual has

EDITOR'S NOTE: Although this article by Prof. Cox concerns primarily the integration of swine production, some of his comments concern the entire livestock industry and should be of interest to feed men. The article is from a recent issue of Economic & Marketing Information for Indiana Farmers, prepared by the agricultural economics staff of Purdue University.

Thermy* says:
"Excess moisture robs you of grain profits"

A Hot Spot Detector Temperature System pays for itself by helping maintain quality and market value of stored grain.

Excess moisture, vapor, and top sweating can cause damage to stored grain — result in costly losses.

With a Hot Spot Detector Temperature System on the job, loss can be greatly minimized. Moisture causes heat, and Hot Spot tells you when and where heating occurs in time for you to take corrective measures.

Learn for yourself why grainmen depend on a Hot Spot Detector Temperature System to take worry, guesswork and risk out of grain storage. Write for complete Hot Spot profit making story today!

*Thermy means "Thermocouple" — the amazing heart of Hot Spot that transmits the temperature from your grain to you.

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generally been considered the culprit in the poultry industry. However, as we look at hogs, we find that purchased feed represents only a small proportion of the total value of the hog. To guarantee prices to farmers and take the other risks in producing hogs appear too great for the feed dealer to accept. In addition, there are still many problems to be worked out before the production of feeder pigs is a science that can be turned over to hired labor. A few feed dealers will try many ways to sell more feed, but in the long run, the feed dealer appears not to be a major contender for the role of the integrator.

2. Retailer — Hog production is rather complicated for a merchandising organization at the retail level. Retailers are accustomed to buying supplies each week, whereas the production process for pork takes about a year. The retail firm which might be in a position to be an integrator has sufficient bargaining power to get the benefits of technology from the various packing firms without being limited to the initiative and new methods developed by his own packing firms. Therefore, the retailer is not a contender for the integrator position.

3. Processor or packer—The packer needs orderly marketing or a dependable supply of livestock. His labor contracts with a guarantee of 36 hours per week with time and a half for over 40 hours makes fluctuations in receipts extremely expensive. Also, with the retailers demanding quality preferred by the consumers, the packers will tend to benefit from demanding this quality in livestock. Therefore, the packer stands out as a likely contender for the role of integrator.

4. Marketing firms—As long as the marketing firms work on a per head basis and the livestock generally pass through markets, the firms have little incentive to be an integrator. However, when it is threatened by livestock by-passing the market, the operators may try to preserve their positions. They may attempt to offer the services demanded by the packing firm on one side and the farmer on the other. If they can adequately provide this service they may actually prevent integration or they may be the integrator. In general, it appears that they will not take on the jobs of processing or production but would try to preserve the present system and try to prevent integration.

5. Farmer—Farmers stand to lose if the market for pork continues to decline, particularly if they continue to produce the same numbers. Markets and packing plants lose if numbers are restricted. The farmers have been the integrators in a number of instances through cooperatives. (Sweden is about 85% farmer integrated in the livestock industry down to the retail store.) If the processors continue to refuse to deliver to the consumer the product differentiated according to consumer preferences, farmers can provide this quality along with a uniform supply and receive the benefits.

There will be attempts made to integrate the hog industry. The success of these attempts will be more spectacular from publicity points of view than real. Integrated systems outside the Corn Belt may compete cost-wise and appear to have more success in the early days than within the Corn Belt. The efficient Corn Belt producer is still in a favorable position with other production areas even without integration.

ADJUSTMENTS — There is some evidence that packers are now making some changes and are trying to identify differences in value of hogs. Some have begun checking values of hogs purchased. Some consideration is even being given to processing and merchandising the meat-type cuts separately. If the needed changes are made, there is no need to integrate. Therefore, because the industry is being alerted to the possibilities of integration, each segment may make needed adjustments and probably will not be integrated — 10-15% at the most in the next 10 years.

Integration will usually give way to specialization if competition is allowed to force the needed changes. When the segment is going through tremendous technological changes or when monopoly forces dominate, vertical integration tends to remain profitable. However, in the livestock industry, neither major technological changes that will bring about profits from integration nor major forces of monopoly have made it profitable for any segment to integrate. Retailers, processors, marketing firms, farmers, and suppliers can benefit from a program of cooperation to give consumers what is desired. This may at the same time allow each to be free to make the decision without having industry integration.

OPEN FEED STORE

BIG SPRING, TEXAS — A new feed store to be called the Red Chain Feed Store has been opened by Freddy White and Marce Farar here. The two owners took over the Red Chain franchise after the closing of Mac's Feed Store at a downtown location.

California Regulation Changes Discussed

SACRAMENTO, CAL.—The California State Department of Agriculture held an official hearing recently in Sacramento to consider changes in regulations pertaining to the commercial feed law.

While the hearing was attended by a number of industry representatives, there were no objections to the proposed regulation changes, according to a bulletin from the California Hay, Grain & Feed Dealers Assn.

Representatives of the dehydrating industry proposed a new definition of dehydrated alfalfa meal which would limit the definition to meal that is produced from alfalfa which contains at least 70% moisture as it enters the dehydrator, is heated to 100 degrees C. no longer than 45 min., and contains no addition of sun-cured meal. There were no objections to this proposal at the hearing.

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*NOTES FROM BREEZY'S AERATION HANDBOOK: Air flow rates for grain aeration are measured in cubic feet per minute (cfm) per bushel of grain in storage. Typical flow rates are in the range of 1/40 to 1/4 cfm per bushel. Grain depth is the main limitation with respect to high air volumes. The time required for cooling depends upon the air rate. 1/10 cfm per bushel uniformly distributed provides a cooling time of 100 to 130 hours, but 1/40 cfm per bushel requires 400 to 500 hours of fan operation.

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NEBRASKA

(Continued from page 24)

shelter nor windbreak. Abnormally low temperatures and heavy amounts of snow during the months of February and March affected feed consumption in all of the lots. Gains were affected also.

SORGO SILAGE FOR WINTERING STEER CALVES—Eight lots of weanling steer calves were wintered 140 days on sorgo silage ration with various supplements, which were fed in several combinations: Ground shelled corn, sorghum grain pellets, dried molasses, dehydrated alfalfa and soybean oil meal.

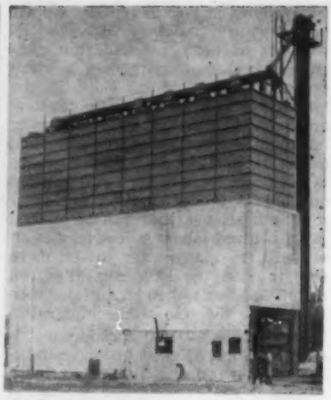
Results showed that replacement of .3 lb. soybean oil meal with 1 lb. dehydrated alfalfa increased gains about 10%. There was no significant difference in the performance of calves in the other comparisons. Average daily gains for the calves ranged from 1.43 to 1.75 lb.

WINTERING CALVES ON LOW GRADE ROUGHAGE—Poor quality brome hay was supplemented in this experiment with low, medium, and high levels of protein along with either corn, dried molasses, stilbestrol or combination of dried molasses and stilbestrol.

Three levels of digestible protein in the daily ration were fed—0.6 lb., 0.8 lb. and 1 lb. The 0.8 lb. level is the daily allowance recommended by the National Research Council for wintering weanling calves expected to gain 1 lb. per head daily.

Results were very similar to those received a year ago. The addition of protein supplement beyond the recommended level did not increase the gains enough to justify the additional cost of the protein supplement. The substitution of ½ lb. dried molasses with or without stilbestrol for ½ lb. ground shelled corn did not improve gains.

Feeding 10 mg. stilbestrol per head daily increased gains approximately 4% but required about the same amount of feed per pound of gain as



BULK TERMINAL — The Pennsylvania Farm Bureau Cooperative Assn. recently completed the construction of this $100,000 bulk terminal at Winfield, Pa. George G. Connor, executive vice president and general manager of the cooperative, said the purpose of the terminal is to help provide feed delivery service to central Pennsylvania farmers direct to farms by special truck which pipes feed into bins or other farm storage facilities.

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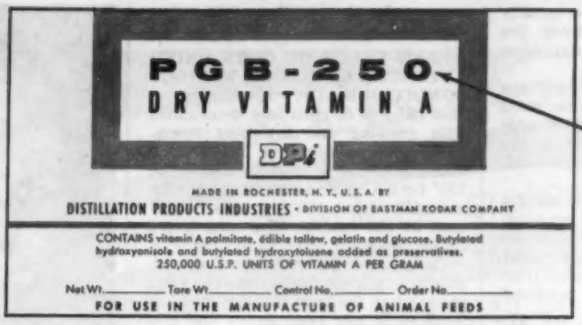
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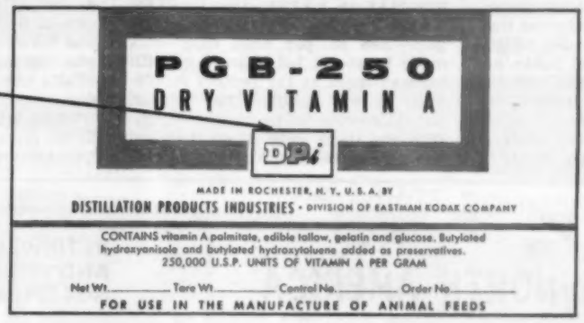
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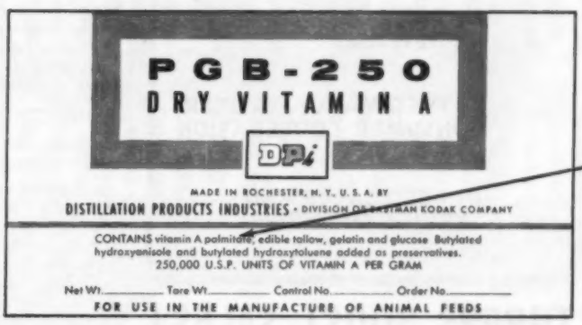
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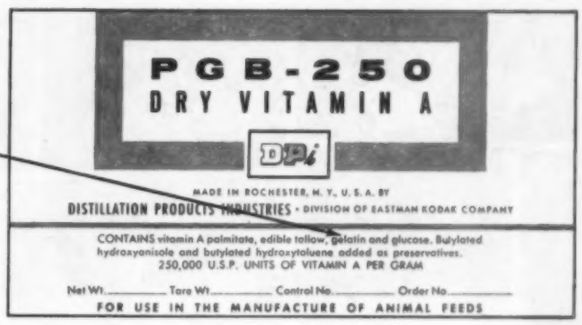
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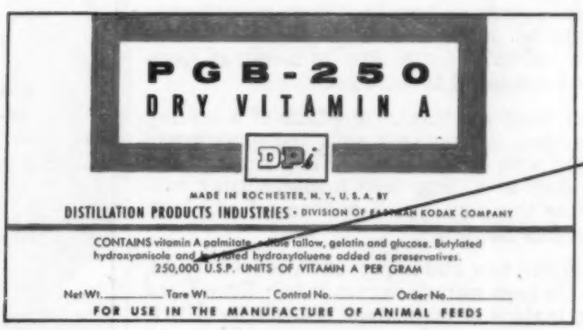
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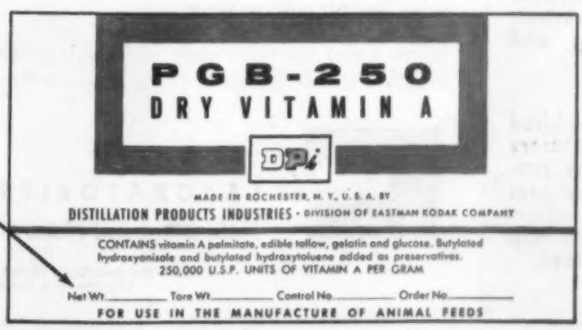
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compared to the group that did not receive stilbestrol.

When stilbestrol was added to the ration the gains and feed efficiency increased as the level of protein increased. A similar trend was observed when stilbestrol was not added to the ration, but the magnitude in gains was not as great. Gains were increased 32% when the level of protein was increased from the low level to the high level when stilbestrol was added to the rations. However, when stilbestrol was not fed, the increase in gain was about one third as much, 11%, as the protein level increased from the low level to the high level.

PELLETING LOW GRADE ROUGHAGE—A sidelight on wintering calf feeding studies indicates that pelleting can make low quality roughage palatable. (Dr. Marvel Baker, assistant dean of agriculture, and Dr. Turgut Goksu, graduate student, reported on the experiment.)

Primary objective of the study is the relation of protein and energy to the growth of calves on low quality roughage. In order to improve the control over experimental variables, the roughage was pelleted.

Calves refused unpelleted roughage composed of low grade native grass hay with some poor quality bromegrass. However, when pelleted, the calves consumed the roughage readily, researchers reported.

During the first 84 days of testing, the 400-lb. calves consumed an average of 8-10 lb. pellets per day depending upon the supplement used. They made average daily gains from practically nothing to 0.8 lb. per head.

COMPARATIVE VALUE OF ALFALFA, BROMEGRASS AND PRAIRIE HAY IN FATTENING CATTLE RATIONS—In this test, the greatest gain—2.98 lb. per head daily—was made by steers fed brome hay with soybean meal as the protein supplement. It was reported that none of the differences in gains was significant and there were no great differences in dressing percentage or carcass grades due to the rations that were fed.

FEED VALUE OF CORN DRIED ARTIFICIALLY UNDER VARIOUS CONDITIONS—The digestibility of four batches of corn was determined with growing and fattening steers. Drying temperatures of 130° for 7.5 hours and 160° for 6.75 hours and 190° for 5.5 hours were compared with naturally dried (60° for 168 hours) corn as the control. The corn tested 20.4% moisture prior to drying.

Each batch of corn was fed with alfalfa hay. Digestibility studies were made when the corn was fed at a low level (4 lb. per head daily) and also with a high level (13 lb. per head daily). Alfalfa hay was fed at the rate of 9 lb. per day when the corn was fed at a low level. When the corn was increased to the high level, the alfalfa hay was reduced to 5 lb. per day.

There was no significant difference in the digestibility of the rations. The temperatures and the drying time for the corn used in this test did not appear to affect the palatability.

DEHYDRATED ALFALFA AS A PROTEIN SUPPLEMENT FOR FATTENING CATTLE WHEN FED WITH AND WITHOUT STILBESTROL—Results of this trial were much like another experiment conducted a year ago.

In this second trial, 80 head of

C. F. Stanton

REPRESENTATIVE — The appointment of C. F. Stanton as district representative for Highway Equipment Co., Cedar Rapids, Iowa, has been announced by Gale E. Allen, general sales manager. Mr. Stanton will represent the firm in the states of Colorado, Kansas, western Missouri, Nebraska, New Mexico, Oklahoma, South Dakota, Texas and Wyoming. Highway Equipment Co. manufactures bulk material delivery equipment as well as spreaders and other equipment.

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yearling steers were full-fed ground shelled corn with 4.5 lb. prairie hay. The protein supplement consisted of one of the following: 1 lb. soybean oil meal; .5 lb. soybean oil meal and 1.25 lb. dehydrated alfalfa; 2.5 lb. dehydrated alfalfa, and 5 lb. dehydrated alfalfa. The main objective of the experiment was to determine the value of each of these supplements when fed with and without stilbestrol.

The greatest gains were made by steers fed 2.5 lb. dehydrated alfalfa without stilbestrol. Relatively similar gains were made by steers fed 2.5 lb. dehydrated alfalfa with stilbestrol. Carcass grades and dressing percentages were about the same for all lots.

BEEF CARCASS EVALUATION—Objectives of this experiment were to: (1) Determine what factors or measurements of the live animal contribute to desirable carcasses and (2) determine the factors that contribute to consumer selection of different retail cuts.

Body measurements of live animals were made prior to slaughter. The desirability of carcass was evaluated by measuring the tenderness of meat, color and marbling score of the rib eye and the amount of fat, lean and bone on the 9th, 10th and 11th rib cut. Consumer desirability was determined by the visual appraisal of the rib cut taken from each carcass.

Results from these studies reveal that: (1) Live animal scores or visual appraisal were more accurate in predicting the muscling than tape measurements of various parts of the animal body; (2) relationship between live animal grade and carcass grade was fairly high and (3) consumer acceptability of the meat cut varied with the amount of outside fat, marbling, color and size of muscle.

EXPERIMENTS IN PROGRESS—Several wintering and fattening tests are in progress. Among these are: (1) Pelleted roughages for wintering steer calves; (2) pelleted rations for growing and fattening steers; (3) levels of protein for wintering calves; (4) tranquilizers for fattening cattle; (5) hormone implants for fattening cattle; (6) value of an all-sorghum ration for wintering calves.

Connecticut Officials Seize Apple Pomace

HARTFORD, CONN.—A threat of contamination of milk and beef produced in Connecticut has led to the seizure of about 51,000 lb. of apple pomace livestock feed, the Connecticut Food and Drug Commission has announced.

The feed contained excessive amounts of DDT and lead, Commissioner Attilio R. Frassinelli said. Harold Clark, chief of the commission's food division, said the feed was taken from the establishments of two Connecticut feed dealers who were unaware of the adulterating substances it contained.

The apple pomace was made from the residue of apples which had previously been sprayed with DDT and lead insecticides. The lead is highly toxic to cattle and the DDT becomes stored in the fat of the animal consuming it. The slaughtered cattle would show traces of DDT in the meat. Dairy animals fed apple pomace contaminated with DDT would have DDT in their milk, Mr. Clark said.

The amount of pomace seized would fill about two freight cars, Mr. Clark. It is being held pending determination of a way to dispose of it. He said the apple pomace was not manufactured in Connecticut.

PROMOTION ANNOUNCED

MEMPHIS, TENN. — Stanley K. Wilkinson has been promoted to truck department superintendent of the Memphis plant, it has been announced by McMillen Feed Mills, feed division of Central Soya Co., Inc., Ft. Wayne, Ind. Mr. Wilkinson was transferred here from the Fort Wayne office, where he was engaged in the dispatching and analytical phases of truck operations.

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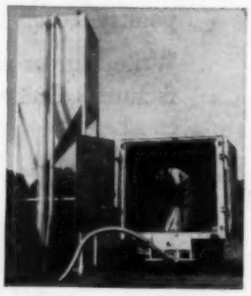

Blackstone unit in action. Couplings on lightweight Daffin*aire* Unloader fit standard storage tubes.

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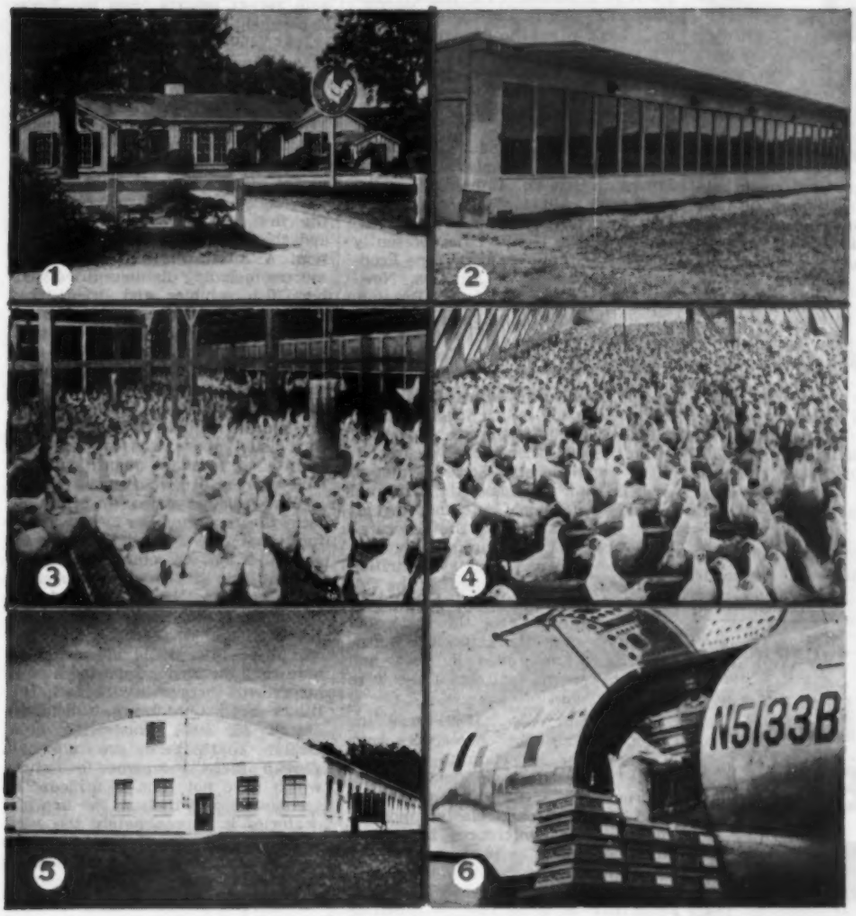

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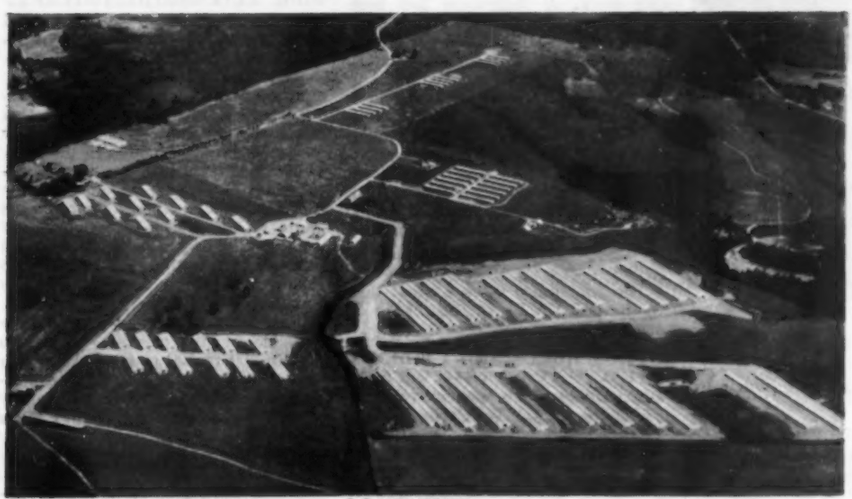
3. Interior typical of laying houses at Duluth which house over 100,000 breeders at all times.
4. Interior of typical Vantress brooder house. Facilities are maintained for starting 350,000 pedigree chicks per year.
5. Incubation Plants are maintained at seven strategically located points to facilitate prompt service.
6. Chas. Vantress Farms stresses thorough planning on all delivery of orders. Every effort is made to see that Vantress Dominant White Male Line Cockerels reach you to fit your replacement schedule.



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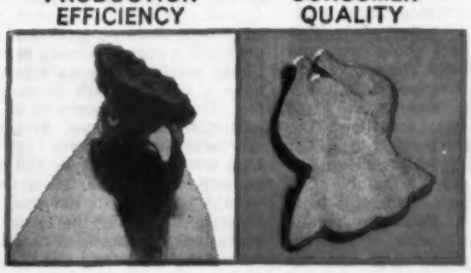

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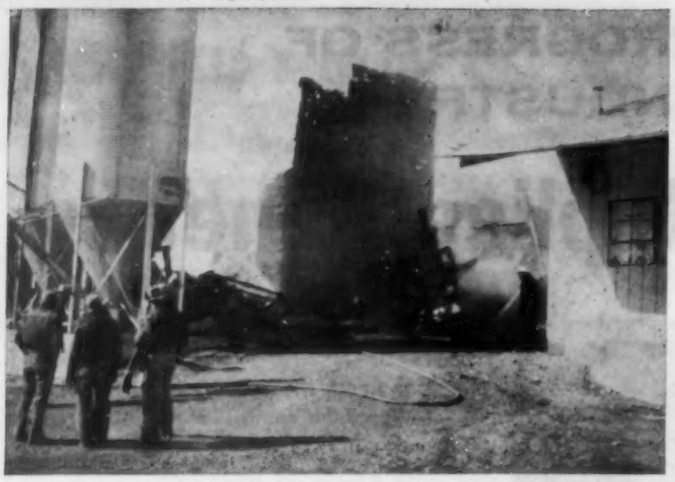

ELEVATOR AND MILL DESTROYED—This was the scene as firemen battled the blaze which destroyed the Farmers Union Grain Terminal Assn. feed mill and elevator at Billings, Mont. (Feedstuffs, April 18). The loss, which included about 50,000 bu. grain, was estimated at near $400,000. It was reported that approximately 30 tons of ammonium nitrate fertilizer was stored dangerously nearby and that Billings residents, fearing an explosion, were in a state of near-panic. The fertilizer was of a type which exploded in Texas City, Texas, several years ago, causing disastrous damage. Firemen, however, kept the fire from spreading to the fertilizer warehouse.

CONFERENCE

(Continued from page 16)

ble vitamin levels in feeds being used on a practical basis.

Deficiencies: Dr. J. G. Bieri from the National Institutes of Health presented data concerning the difficulties encountered in distinguishing between deficiencies of vitamin A and vitamin E in the chick. Dr. Bieri showed that it was necessary to have an uncomplicated deficiency in research work and that vitamin A deficiency must be ruled out by chemical determinations on liver tissue when diagnosing encephalomalacia. It was surmised during this presentation that many of the earlier reports on a deficiency of vitamin E, primarily encephalomalacia, may have been confounded by a multiple deficiency of vitamins A and E.

HISTORY—INFORMAL POULTRY NUTRITION CONFERENCE: The history of the Informal Poultry Nutrition Conference was outlined by Dr. L. C. Norris, Cornell University. The first conference was held at Cornell University at the time when Prof. Rice retired as head of the poultry husbandry department in 1934. Dr. W. C. Russell, at that time chairman of the department of biochemistry, Rutgers University, was elected chairman and there were seven in attendance. Dr. Russell continued as chairman of the conference until 1952, when the present committee was appointed to administer the conference. Personnel present at the original meeting in 1934 included Dr. R. M. Bethke, presently vice president in charge of research, Ralston Purina Co., St. Louis; Dr. G. F. Heuser, presently employed by Stone Mountain Grit Co., Lithonia, Ga.; Dr. J. Hunter, Allied Mills, Libertyville, Ill.; Dr. Norris; Dr. W. C. Russell, deceased; Dr. H. W. Titus, presently director of research, Limestone Products Corporation of America, Newton, N.J., and Dr. H. D. Branion, presently head, department of animal nutrition, Ontario Agricultural College, Guelph, Ontario, Canada, and also editor of Poultry Science.

All conferences since 1934 have been held in connection with the meetings of the Federated Societies, with the exceptions listed below. In 1936, the Federated Societies met in Washington, D.C. and the Informal Poultry Nutrition Conference met at Beltsville, Md. In 1939, the Federated Societies met in Toronto, Canada, and the Informal Poultry Nutrition Conference met at Guelph at the Ontario Agricultural College. There were no meetings of the Federated Societies or of the Informal Poultry Nutrition Conference in 1944 and 1945 due to the fact that these were the war years.

This conference (1959) was the 24th meeting. The conferences have become very important to all individuals interested in the fields of poultry nutrition and feed manufacturing and have been particularly important because the conferences have been designed so as to promote free and open discussions. Some of the discussions become quite heated, but it is felt that this leads to more constructive work. A suggestion has been made to include the Informal Poultry Nutrition Conference as a separate section of the Federated Societies. Another suggestion has been made to include the Informal Poultry Nutrition Conference as part of the regular meeting of the Poultry Science Assn. All such suggestions have been resisted. It is felt that the present arrangement is most suitable and advantageous for promoting free and open discussions and for promoting better thinking from personnel in attendance.

The conference owes a great debt to the late Dr. W. C. Russell for its origination.

PHOSPHORUS AND UNIDENTIFIED FACTORS—TURKEY BREEDERS: This paper was presented by Dr. C. W. Carlson, South Dakota State College. Dr. Carlson pointed out that the National Research Council requirement for phosphorus for turkey breeders is 0.75%. A basal diet containing corn, soybean oil meal and dehydrated alfalfa meal was used in Carlson's first study. This diet contained 0.34% phosphorus, and was fed for 20 weeks. The supplementation of the diet was made with 0.48% phosphorus from bone meal. After this experiment was completed, Dr. Carlson initiated a purified type diet study with turkey hens and with a diet containing approximately .05% phosphorus and less than .01% inorganic phosphorus. From the results of Dr. Carlson's studies, it was apparent that a purified type diet was necessary for the determination of the actual phosphorus requirements of the turkey hen and that a level of phosphorus below a 0.4% added inorganic phosphorus would not support normal hatchability. The phosphorus requirement of the laying turkey hen was estimated to be between 0.25 and 0.43%.

An effect was observed from including unidentified growth factor sources in the diet. Sources of unknown growth factors in this case included dried whey, dehydrated alfalfa meal and fish solubles. Dr. Carlson also obtained an increase in hatchability by adding a water extract of soybean oil meal to the formula. Such an addition is in agreement with recent reports from the Texas Experiment Station and Washington State College to the effect that soybean oil meal contains a factor necessary for hatchability in chickens.

UNIDENTIFIED GROWTH FACTORS—CHICKS: A paper on unidentified chick growth factors—apparently organic in nature—was presented by Dr. Richard Dam, Cornell University. Dr. Dam used two diets, the first containing 22.9% protein and the second containing 32% protein. A mixture of crude material sources including distillers dried solubles, fish solubles and dried whey served as a source of unknown growth factors on a positive control basis in this work. Dr. Dam also used liver extract No. 1 from Wilson & Co., Chicago. In the course of Dr. Dam's investigations, the ash from the sources of unknown growth factors listed above was fed so as to maintain a constant quantity of possible unidentified, inorganic factors.

The principal point to bring out from the report of Dr. Dam was the fact that an average increase in growth of 9% was obtained from the unidentified growth factor sources which could not be accounted for on the basis of the inorganic fraction. The range of the growth increases was 4 to 14%. It is interesting to note that the writer reported a similar growth increase at the 14th Distillers Feed Conference, Cincinnati, March 25, 1959, illustrating quite clearly that there are unknown growth factors, organic in nature, which have not been identified. The increase in growth from the two laboratories is approximately the same and the range of such increase which can be attributed to organic factors is likewise approximately the same.

ARASAN (THIURAM DISULFIDE TETRAMETHYL)—TURKEY POULTS: This paper was presented by Dr. Arthur A. Camp, Texas Agricultural Experiment Station, Gonzales, Texas. Dr. Camp pointed out in his introduction that the studies reported here were initiated as a result of observing Arasan toxicity in growing turkey poults in the Gonzales area. The objective was to determine the level at which Arasan is toxic to turkey poults. Arasan is used quite widely for the fumigation of corn and other grains. The level used in corn fumigation is from 500 to 1000 ppm. When corn is used to supply 60% of the total formula, this would mean that it would be possible for the chicks or poults to obtain 300 to 600 ppm. of Arasan in the total formula. Extensive experiments have been carried out earlier with chicks, but to Dr. Camp's knowledge there have not been any reports on Arasan toxicity in turkey poults.

From the results of these investigations, it was quite apparent that Arasan at a level of 539 ppm. retarded growth, and at a level of 270 ppm. produced a slight decrease in growth. Lower levels of Arasan appeared to have a slight growth promoting effect. This is not thought to be of any particular consequence. Arasan toxicity was not overcome by adding high levels of vitamin A and calcium pantothenate to the levels normally used in broiler feeds, nor was it overcome by increasing the levels of calcium and phosphorus in the diet.

It is apparent from this report that turkeys fed a diet containing as much as 60% yellow corn, and if such yellow corn has been treated with Ara-

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san, could very well come down with Arasan toxicity since such a sample of yellow corn would supply 300 to 600 ppm. of Arasan. Although it is not a part of this report, it should be pointed out that Arasan is more toxic to growing chicks. Bone ash was not affected in the turkey poults, and neither was the vitamin A content of the liver affected by the feeding of the higher levels of Arasan.

AMINO ACID REQUIREMENTS AND PROTEIN NUTRITION: The first paper in this particular area was presented by Dr. Hans Fisher, Rutgers University. The objective in Dr. Fisher's investigations was to determine whether there might be a difference in normal chicks maintained on standard formulas and in protein-depleted chick requirements for amino acids. Experiments were carried out by maintaining normal chicks on a standard practical starting formula for two weeks, after which time one-half of the chicks were placed on a nitrogen-free diet. During this period there was a weight loss of 10 to 15%. The remainder of the birds were continued on the original starting formula. Protein levels were also varied. It was determined as a result of these investigations that the depleted chicks had a higher absolute requirement for methionine and lysine, and that the non-depleted chicks apparently did not require as much as 20% protein, whereas the depleted chick requirement for protein was over 20%. It was apparent that the non-depleted chicks have a lower protein requirement and consequently a lower lysine and methionine requirement. The depleted or non-depleted chicks require from 6 to 6.25% lysine as a percentage of the protein in order to meet the lysine requirements This report simply illustrates that the depleted chicks have a higher protein requirement and consequently a higher requirement for the two amino acids investigated, but not necessarily a specifically higher metabolic requirement, since the percentage of amino acid required could be expressed as percent of the protein in both cases.

Under the same heading, studies on the protein nutrition of hens were reported by Dr. P. E. Waibel, University of Minnesota. Both a low energy diet and a high energy type diet with different levels of protein were in these investigations. Criteria used to evaluate the results obtained included egg production, feed conversion and body weight changes in the birds. It was apparent that with the lower energy formulas the protein requirement of the laying hens could be met with a lower protein content than could the protein requirement of hens fed the high energy diet.

From a practical standpoint, this simply means that the low energy formula for laying hens can be of a lower protein content than the higher energy type diets. The protein requirement of laying hens has been under investigation in a number of laboratories over the country and has been discussed by the writer in a number of popular articles. The above work points out that when the hens are fed a low energy type diet, there will be less efficient utilization of the feed, thus resulting in an increase in feed consumption, and it should be pointed out in this case that the hens consume or require the same quantities of amino acids. In the case of the low energy diet, more of the diet has to be consumed in order to meet the energy requirements and therefore the protein content of the diet may be decreased accordingly.

ENERGY SOURCES FOR GROWING TURKEYS: A report on a comparison of oats plus fat versus corn as energy sources for growing turkeys was given by Dr. C. W. Carlson, South Dakota State College. In this particular case, the turkeys were carried to 26 weeks of age. Fat was added to the oat diet in order to equilibrate the energy content of the two diets. From the results of the study, it was apparent that turkeys required a level of energy above that provided by oats. It has been the practice for many years for turkey raisers to use oats in large quantities during the growing season. This is a mistake since the energy content of oats is not sufficient to meet the energy requirements for most rapid growth and best energy utilization. The fat used with the oats provided added energy and improved the utilization of the energy content of the diet as well possibly adding unsaturated fatty acids or adding an unknown growth factor. This was discussed in an earlier paper given by Dr. L. C. Norris, Cornell University, before the 14th Distillers Feed Conference. During the course of these studies it was observed that there was a difference in turkey strain responses to higher energy diets.

POTENTIATION OF ANTIBIOTICS: There were two papers on the potentiation of antibiotics. The first of these was presented by Dr. J. H. Hare from the research laboratories of Chas. Pfizer & Co., Inc., Terre Haute, Ind. The title of this paper was "Mode of Action of Terephthalic Acid in Antibiotic Potentiation Studies with Poultry." Dr. Hare reviewed the reason for going into a study of antibiotic potentiators. This field

OFFICERS—New officers of the Southeastern Renderers Assn. elected at the group's recent convention in Biloxi, Miss., are (left to right): Stanley Frank, Greensboro, N.C., president; Haber Vickers, Birmingham, Ala., vice president; William Baucom, Ft. Mill, S.C., secretary, and Joseph Cohen, Miami, Fla., treasurer.

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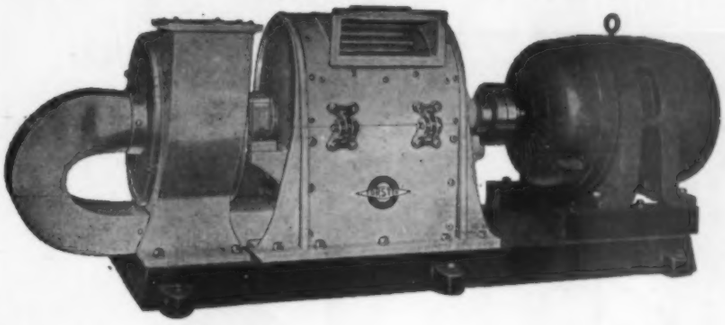

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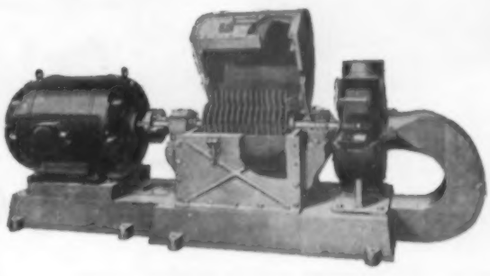

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of research was actually brought about by studies with mastitis, a subject having nothing to do with poultry nutrition. During the course of these investigations, it was observed that divalent cations such as magnesium and calcium in the media produced an increase in the amount of antibiotics required to inhibit organisms in milk. The addition of calcium binding agents tied up the calcium and reduced the amount of antibiotic necessary to inhibit organisms in milk in these earlier investigations. Other data presented by Dr. Hare have been previously reviewed from the report given by Dr. W. P. Crawford before the poultry section of the Association of Southern Agricultural Workers (Feedstuffs, Feb. 21, 1959, pp. 42-44, 65-66).

Dr. Hare pointed out that terephthalic acid potentiated or increased the broad spectrum antibiotic content of the blood in the following manner: (1) the terephthalic acid increases the absorption of the antibiotic from the gastro-intestinal tract, and (2) decreases the excretion in some manner by improving retention in the kidneys.

The second paper on the potentiation of antibiotics was presented by Dr. E. L. R. Stokstad, American Cyanamid Co. Dr. Stokstad showed that the calcium level of the diet had a definite effect on potentiating the antibiotic content of the blood and studied calcium carbonate and calcium sulphate as calcium salts. The calcium content of the basal diet was 0.35%. It was rather interesting from Dr. Stokstad's presentation that calcium sulphate as a calcium source was the only salt of calcium which did not interfere with Aureomycin absorption from the gastro-intestinal tract. Dr. Stokstad compared calcium sulphate and calcium carbonate as calcium sources with the average weight and feed consumption as criteria in evaluating the two calcium sources. There was no difference with regard to average weight and feed conversion, illustrating that calcium sulphate as a calcium source had no effect on either decreasing or increasing the average weight and feed conversion when compared with calcium carbonate.

From the results of Dr. Stokstad's presentation a number of practical applications might be surmised. It is not thought wise to use calcium sulphate as a calcium source for practical feed usage since the compound causes or produces wet droppings or wet litter. It was thought that calcium sulphate might be used to supply one-half of the calcium and calcium carbonate the other half of the added calcium. Under such circumstances, there would be less difficulty, or no difficulty with wet droppings or wet litter. It was also brought out during the discussion that calcium sulphate might be used for a short time therapeutically with a broad spectrum antibiotic.

It was pointed out during Stokstad's discussion, and attention is again directed to the report of the poultry section, Association of Southern Agricultural Workers meeting in Feedstuffs (Feb. 21, 1959) in which it was suggested that a low calcium diet might be used with a high level of broad spectrum antibiotics for therapeutic purposes for a short time. In this particular case, results were presented which illustrated that a potentiation of the blood level broad spectrum antibiotics could be obtained in a matter of a few hours. Thus, it might be a good procedure for the feed manufacturer to make up a low calcium feed with no added calcium sources and possibly use 100 to 200 gm. per ton of broad spectrum antibiotics, with instructions for the feeder to use such feed for possibly one-half to one day only. It was illustrated that a low calcium diet could be fed for as long as five to seven days to chicks without detrimental results. Results presented from the Pfizer laboratories, reviewed in the Feb. 21 issue of Feedstuffs, also showed that the low calcium diet could be fed to growing chicks for a

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SALES MANAGER—Joseph F. Volt has been named sales manager of the special soy products division for the Ralston Purina Co., St. Louis, according to Eldred A. Cayce, vice president. W. E. Tjossem is division manager. Mr. Volt was formerly with the chemurgy division of Central Soya Co., Inc., where he was eastern sales manager of industrial protein products. Previously he was associated with the Drackett Co. as chief chemist and technical sales engineer for the soya protein division.

period of five to seven days without detrimental results.

At the present time, it appears that the potentiation of the broad spectrum antibiotics must be obtained through the use of a low calcium diet rather than by the addition of terephthalic acid to the formula.

FUMIGATION OF CHICK ROOMS—CHICK GROWTH: Dr. H. M. Edwards, University of Georgia, presented some rather interesting data illustrating that the growth of chicks in a standard chick battery laboratory could be increased by fumigating the chick rooms with the treatment that is normally used for the fumigation of incubators—potassium fermanganate and formaldehyde. The report presented was a result of a number of studies on calcium, magnesium and zinc. Under the conditions of these experiments it would appear that chicks reared in fumigated rooms have a lower nutrient requirement. From this report, it is apparent that the fumigation of the chick rooms reduces the disease level.

A similar effect has been observed and reported by a number of workers. The latest of these was reviewed in Feed Age (October, 1958, p. 36). In this particular instance, it was noted by the writer and Dr. Anderson of Ontario Agricultural College, that certain bacteria could be fed to chicks and reduce the growth rate. Likewise, the growth depression could be overcome by the addition of antibiotics. It has been repeatedly emphasized in various reports that disease level is one of the best means of interpreting the mode of action of antibiotics.

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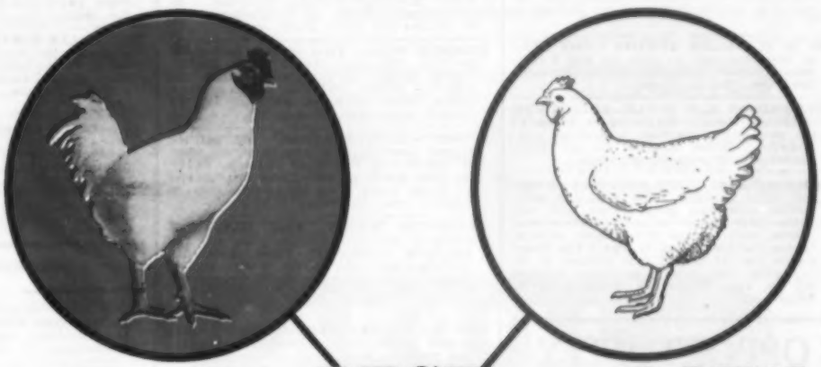

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There is a difference in the ability of males to combine with females . . . *to reproduce the best characteristics of both sexes!* This is very important to you in protecting your investment in good breeding stock. It's not enough to have a good male and a good female. What you want is good progeny! That's why the *combine-ability* of the Peterson Male means so much to you. Be sure you'll get the outstanding characteristics of hatchability, livability, fleshing, and feed conversion in your commercial broiler chick that you've paid for in your parent stock. The Peterson Male is well known for its outstanding *combine-ability!* Be sure with PETERSON! Remember, too, Peterson cockerels cost less in the first place.

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Classified advertisements received by Tuesday each week will be inserted for the issue of the following Saturday.
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FEED MIXER, 1-TON CAPACITY, guaranteed first-class throughout, 5 H.P. motor drive. Address Ad No. 3479, Feedstuffs, Minneapolis 40, Minn.

WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P. O. Box 574, Jefferson City, Mo.

NO. 0 RAPIDS UNIT SACK CLEANER. Good condition. $125 less motor. Squealer Feed Co., Harlan, Iowa.

DAFFIN FEED MILL ON 1955 FORD truck. Good shape. Cash or liberal terms. Mill located at Colo, Iowa. Hatfield's Feed Service, Box 96, Clewiston, Fla.

FILTER PRESSES—SMITH VALE 30"x30", Sweetland—24" diameter. Scrap Corp. of America, 600 S. Central Ave., Baltimore 2, Md.

NO. 20 STANDARD BURTON 1-TON MIXer, complete with all steel leg and 3 H.P. motor. Good condition, $200. Squealer Feed Co., Harlan, Iowa.

RICHARDSON G-38 SCALE—EXCELLENT condition, recently inspected by Richardson personnel. Less than ¼ original cost. Midwest location. Address Ad No. 4751, Feedstuffs, Minneapolis 40, Minn.

FOR SALE FOR QUICK REMOVAL—HAMmer mills, attrition mills, 9x30 and 9x24, double rolls and 9x18 3-high and roll chills. 29D clipper cleaner, 2-wheel bag trucks, corn cutters and graders, mixers, ¼ ton Fairbanks and ½ and 2 ton Howe scales. 7½, 10 and 15 H.P. motors, 12 ft. bag piler, bag sewing machine. Address Ad No. 4759, Feedstuffs, Minneapolis 40, Minn.

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Here is your opportunity to get into pelleting for a truly reasonable investment. Only

$2,750.00

For a complete unit

Ad No. 4788, Feedstuffs Minneapolis 40, Minn.

Used Mill Equipment For Sale

BRYANT HAMMERMILL 12", with crusher, fan attached, 40 H.P. motor, 3 Ph., 220 V., good running rder, $575; WINSTED HAY SHREDDER, complete with 5 H.P. motor, fan, piping, 2 years old, $395; GEHL HAMMERMILL 18" on base, $195; BEARCAT No. 4 HAYCUTTER and GRINDER, complete with drive pulleys, 2 years old, excellent condition, $295; O.K. 100-lb. BAGGING SCALE with stand, $195; KELLY-DUPLEX CRUSHER-FEEDER, 2 years old, good condition, $195; 25 H.P. WESTINGHOUSE COMPENSATING STARTER, 220-440 V., nearly new, $195; BLUE STREAK MIXER, twin spiral, 80 cu. ft., belt, drive pulley, $195; USED MOTORS: 60 H.P. Century, 1800 R.P.M., 3 PH., 220-440 V. SB, $370; 50 H.P. Westinghouse, 1800 R.P.M., 3 PH., 220 V. BB $450; 40 H.P., 1800 R.P.M., 3 PH., 220 V. SB, $290; 25 H.P. 3600 R.P.M., 3 PH., 220-440 V. SB, $250; 15 H.P., 1800 R.P.M., 3 PH., 220 V. SB, $180; 15 H.P., 1200 R.P.M., 220-440 V. BB, $210; 7½ H.P., 1800 R.P.M., 3 PH., 220-440 V. BB, $130; 5 H.P., 1800 R.P.M., 3 PH., 220 V. SB, $78.

HAROLD A. PETERSON, INC.
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Watertown, Wisconsin
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MACHINERY FOR SALE

FOR SALE—LATE 1957 TANDEM TRUCK. Very low mileage, excellent condition, 18 ft. knaphide grain box with hoist, scales 15 ton legal. Bingham Feed & Grain, Knoxville, Iowa; Phone VI 2-4232.

FOR SALE — REBUILT PUP TRAILER with 12 ft. grain box, completely reconditioned and ready to go. Bingham Feed & Grain, Knoxville, Iowa; Phone VI 2-4232.

BLOWERS POSITIVE — SUTORBILT & Fuller, sizes 20x36, 18x36, 10x18. With or without air locks and motors. Scrap Corp. of America, 600 S. Central Ave., Baltimore 2, Md.

DAFFIN MOBILE MILL ON 1957 CAB-over-Chevrolet V-8. Only 600 hours on diesel. Excellent condition. 5,000-gal. molasses tank. Pump. H. K. Cochran Co., P. O. Box 149, Little Rock, Ark.

HAMMER MILLS, TWO 60 H.P. and ONE 40 H.P. Enterprise size 3 model EVCM. TEFC motors, 220/440 volt, serial No. 421027 - 411010 - 411009. Excellent condition. Scrap Corp. of America, 600 S. Central Ave., Baltimore 2, Md.

SCALES — RICHARDSON — 4 BU. RICH-ardson continuous; Fairbanks batch, 1,000 lb., automatic; Fairbanks platform, 60,000 lb. Also platform beam and dial scales, all types. Scrap Corp. of America, 600 S. Central Ave., Baltimore 2, Md.

ALUMINUM TANK, 4,000 GAL. DE-watering presses: Davenport No. 1A, 3A, Louisville 8-Roll, 36". Three Louisville rotary steam tube dryers 6'x50', 6'x25'; screw conveyor, trough belt conveyor, bucket elevator, bins, etc. Perry, 1403 N. 6th St., Philadelphia 22, Pa.

FOR SALE—ENCLOSED MOTORS; RICH-ardson Scales; truck scales; hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 574, Jefferson City, Mo.

FOR SALE—TWO JOLIET CORN SHELL-ers. One is mounted on a Diamond T. truck and power take off driven, and one mounted on an International truck and driven by a Continental motor. Bingham Feed & Grain, Knoxville, Iowa; Phone VI 2-4232.

FOR SALE — HEIL SD 75-22 DEHY-drator, complete with new controls. Natural gas burner, automatic feeder, 40 H.P. electric motor. All A-1. Used very little. Priced to sell. Colorado Machinery & Supply Co., Inc., 4407 East 60th Avenue, Denver 16, Colo.

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SPROUT-WALDRON
PELLET ACES
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Ad No. 4787, Feedstuffs, Minneapolis 40, Minn.

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Gruendler Hammermill, direct connected to a 40 H.P. motor	600.00
Schutte Hammermill, V-belt driven with 50 H.P., 1,800 R.P.M. TEFC motor	800.00
Munson Molasses Blender, complete with motors, pump, fittings, tanks	1,100.00
Gump Vibrox Packer, Model M-36	150.00
Link Belt Car Mover, 5 H.P. TEFC motor	495.00
9" Screw Conveyor, ft.	3.00
12" Screw Conveyor, ft.	4.00
16" Screw Conveyor, ft.	6.00

MACHINERY FOR SALE

FOR SALE—12' ALL-STEEL BAG STACK-er, 29D Clipper cleaner, 40 H.P. Jay Bee Hammer Mill. Hughes Co., Wayland, Mich.

FOR SALE — DUNBAR-KAPPLE MODEL 670 vacuvator, gasoline engine, good condition. Mayfield Milling Co., Box 11, Mayfield, Ky.

MAGNETIC SEPARATORS — "OHIO," 110 volt D.C.; two 20" diameter with chute, one 24" diameter with chute. With or without power source. Scrap Corp. of America, 600 S. Central Ave., Baltimore 2, Md.

FOR SALE—TANDEM AXLE SEMI-TRAIL-er tank truck. Suitable for hauling molasses or water, 3,000 gal. capacity. Three inch, PTO driven Viking pump on truck. Fresh paint and good 10x20 tires. Abingdon Milling Co., Abingdon, Ill.

TWO KELLY-DUPLEX 3,000 LB. MIXERS with molasses spray ring. One 9 in. vertical screw conveyor 15 ft. long. One 5 ton bagging bin. Louisiana Hatcheries, Inc., 4001 S. Carrollton Ave., New Orleans 19, La.

ONE JOLIET CYLINDER CORN SHELLER No. 4 warehouse, Belle City built. One 120,000 lb.-2,000 bu. Howe hopper scale, printer type beam, complete with hopper and distributor spout. One Monitor dustless receiving separator, No. 7 F. Huntley Mfg. Co. Quality Milling Co., Inc., Girard, Kansas; Tel. Park 4-3626.

SITUATIONS WANTED

FEED MILL SUPERVISOR — 25 YEARS Purina. Take complete charge of production. Address Ad No. 4773, Feedstuffs, Minneapolis 40, Minn.

WANTED BY MANUFACTURING AGENT, additional lines. Now calling on feed mills and jobbers in Georgia, South Carolina and Florida. Ted Bedoit, P. O. Box Red Bank, Chattanooga 5, Tenn.

YOUNG, EXPERIENCED MAN WANTS situation that will eventually yield partial or full ownership in feed or farm supply business. Indiana location preferred. Address Ad No. 4775, Feedstuffs, Minneapolis 40, Minn.

MANAGER—EXPERIENCED IN WHOLE-sale and retail feeds and farm supplies. Understands all phases of mill operation and office procedure. College graduate. Address Ad No. 4762, Feedstuffs, Minneapolis 40, Minn.

AGGRESSIVE, MATURE, QUALIFIED salesman. Large following with Indiana-Michigan feed dealers. Seeking dependable allied lines as manufacturers' agent. A-1 references. Address Ad No. 4763, Feedstuffs, Minneapolis 40, Minn.

HELP WANTED

MIDWESTERN FEED MANUFACTURER wants sales manager. Must have experience in handling salesmen and establishing new business. Address Ad No. 4752, Feedstuffs, Minneapolis 40, Minn.

HELP WANTED

ESTABLISHED FEED MANUFACTURER wants feed nutritionist with knowledge of formulation and related fields. No age limitations. Address Ad No. 4637, Feedstuffs, Minneapolis 40, Minn.

MANUFACTURERS' REPS. TO SELL FAST moving line of feed fortifiers and animal health products. Nationally advertised, top quality. Liberal commissions. Address Ad No. 4742, Feedstuffs, Minneapolis 40, Minn.

EXPERIENCED FEED SALESMAN WANT-ed for proven area central Illinois. We have a man retiring and need a replacement. The territory is well established and company well known. Earnings are excellent. Address Ad No. 4451, Feedstuffs, Minneapolis 40, Minn.

FEED ADDITIVE SALESMEN — TERRI-tories open in Iowa and Nebraska with expanding AAA-1 concern. Knowledge of feed industry essential. Permanent position. Salary, expenses and incentive bonus. Address Ad No. 4731, Feedstuffs, 612 Board of Trade Bldg., Kansas City 5, Mo.

EXPERIENCED FEED SALESMAN WANT-ed — Old established feed manufacturer situated in the Northeast is interested in securing an experienced feed salesman to cover a portion of New England. Good opportunity for a man willing to work. Address Ad No. 4670, Feedstuffs, Minneapolis 40, Minn.

WANTED—PRODUCTION TRAINEE, College graduate. Trainee will be given thorough training in plant operations and supervision. Background in nutrition and feed formulation preferable. Reply by letter giving age and education. Address Ad No. 4793, Feedstuffs, Minneapolis 40, Minn.

LARGE MIDWESTERN PHARMACEUTI-cal firm expanding into agricultural research field has opening for man to operate new feed mill. Applicants should have M.S. degree or equivalent experience in the formula feed industry. Experience should be in the field of milling operations rather than nutrition. Address Ad No. 4774, Feedstuffs, Minneapolis 40, Minn.

ARE YOU INTERESTED IN SELLING THE top leghorn in the country today? If so, contact us, as we are hiring district salesmanagers and salesmen all over the country to handle the sales of this outstanding hen. We are only interested in men capable of earning $10,000 to $15,000 per year as salesmen and $20,000 to $35,000 per year as district salesmanagers. Please give complete information in your first letter along with a recent picture. Address Ad No. 4761, Feedstuffs, Minneapolis 40, Minn.

SALESMEN
Feed - Seed

Man 28 to 38 with Purina or similar heavy merchandising background to call on feed mills in area around Clinton, Iowa, to sell heavily researched and merchandised Badger Brand Farm Seed. This is excellent position with many benefits in established territory. Seed experience not necessary. L. Teweles Seed Co., Box 624, Milwaukee 1, Wis.

WANTED: Creative Design Engineer

Immediate opening with leading machine manufacturing company. Experience in design and development of grain, feed and flour processing and handling equipment essential. Excellent opportunity for the right man. Send outline resume. All replies held in strict confidence. Address Ad No. 4730, Feedstuffs, Minneapolis 40, Minn.

NUTRITION SALESMEN

Major basic producer supplying supplements to feed mills needs additional salesmen. This is your chance to join an expanding marketing operation that is going places. A few fine Midwest and Southwest territories available for ambitious men with agricultural college backgrounds and experience in the Animal Nutrition field. Liberal employment benefit program, car and expenses furnished. Salary based on experience. Send complete replies including salary requirement to Ad No. 4722, Feedstuffs, Suite 3214, 551 Fifth Ave., New York 17, N.Y. Our employees are aware of this ad.

SENIOR PROCESS ENGINEERS

Experienced milling or chemical engineer for process engineering with particular emphasis on the production of wheat products, sorghum products, and animal mixed feeds; to work with operating personnel in a staff department on planning and designing production equipment; and to follow up on equipment installation and start up. Based in Minneapolis with moderate travel. Salary open.

Milling or chemical engineer with a minimum of 3 to 5 years' experience in production management and 3 to 5 years' experience in the construction and design of mixed feed plants. Prefer acquaintance with Spanish language and definite willingness to live in Mexico City. Salary open.

Apply in confidence to: Employment Manager, Archer-Daniels-Midland Co., P. O. Box 532, Minneapolis 40, Minn.

BUSINESS OPPORTUNITIES

SMALL GRAIN ELEVATOR WITH EXcellent established retail feed business, north central Minnesota. Good town. Priced to sell at $10,000. Real opportunity. Address Ad No. 4778, Feedstuffs, Minneapolis 40, Minn.

FOR SALE—FEED MILL, BINS 15,000 BU., two dwellings, 4 acre barley, chicken house, barn, hog lot, rich gardens, rich farming center, grain of all kinds, ideal location. Physically unable to keep it. Address Triple Bridge Mills, R. 2, Franklin, Ky.

FEED AND MINERAL MANUFACTURING plant for sale. A going business for sale at a bargain price to settle an estate. Located in Iowa. Good terms available. A fine opportunity to buy a business of your own at low cost. Would also consider leasing plant. Address Ad No. 4756, Feedstuffs, Minneapolis 40, Minn.

WANT TO ESTABLISH YOUR OWN business? Can you sell to feed manufacturers? Ask about selling our proven line of fish-based feed supplements in Wisconsin and Minnesota. We'll travel with you to help you get started. Write today and tell us about yourself. Address Ad No. 4753, Feedstuffs, Minneapolis 40, Minn.

FOR SALE — NEW COMPLETE FEED mill. All new equipment and new fireproof building ideally located north central Texas. Long term railroad lease, close to numerous dairies. Been operating short time. Annual volume four thousand tons. Ideal for national concern to obtain real growing feed business. Price with new bulk truck, $45,000. Address Ad No. 4777, Feedstuffs, Minneapolis 40, Minn.

FOR SALE

Feed and Grain Mobile Processing Unit 1958 Model Myers - Sherman Fordsmobile 400. Grinder-mixer with hot molasses blending unit. Mounted on 1958 R 185 I.H. heavy duty chassis. A-1 shape and operating condition. Priced reasonably for quick sale. Terms available. Contact Jorgensen's Garage, Tel. 2121, Hazelton, Iowa.

MISCELLANEOUS

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Let Ross, Inc., handle sale of your milling equipment and properties large or small anywhere. Largest machinery dealer in the U. S. on feed, flour, corn and processing equipment. No auctions, will sell or purchase, immediate personal appraisal, highest prices. Complete plants, many items needed now. Over 2,000 items in stock. If it's mill machinery
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Turn to PAXCO DEHYDRATED CORN COB MEAL, as many feed suppliers have. Superior molasses carrier. Cattle like it, get real feeding value from it. Reliable source; stabilized prices. Write today to:

PAXTON PROCESSING CO., INC.
P. O. Box 120 Phone 222 Paxton, Illinois

Bag Conveyor

Burrows Aluminum Bag Conveyor is easy to handle and lightweight, yet its faster belt speed delivers more bags per minute. Available with one undercarriage or two undercarriages, for use both in piling and horizontal loading. Four different lengths — 13, 15, 17 and 19 feet.

BURROWS

Burrows Equipment Co.
1316-C Sherman Ave., Evanston, Illinois

MACHINERY WANTED

ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 24, Md.

WANTED—ONE ROTARY STEAM DRYER. Please submit specifications, condition and price. Address Ad No. 4732, Feedstuffs, Minneapolis 40, Minn.

WANTED TO BUY — RICHARDSON scales, bag closing machines and other good mill, feed and elevator equipment. J. B. Hagan Mill Machinery, Jefferson City, Mo.

Suggestions Offered As Guide to Deciding On Contracting of Eggs

ORONO, MAINE—Frank Reid, extension marketing specialist, University of Maine, recently offered a group of suggestions to use as a guide in setting up a budget which could help an egg producer decide whether he should operate under contract. These suggestions were reported in a bulletin published by the University of Rhode Island.

"If the contract guarantees three fourths of a cent per week per square foot of floor space the year around, and one has 10,000 sq. ft. floor space, the gross earnings would be $75 per week for 52 weeks, or $3,900."

He said that since some contracts carry bonuses, an estimate of them should be added to the gross.

The second step, he said, must take overhead costs into consideration. They include taxes, insurance, amortized payments, repairs and all cash expenses. Depreciation and interest on the investment must also be considered.

Mr. Reid provided the following sample budget to point out the importance of overhead:

Overhead Cost—10,000 Sq. Ft. Buildings

Investment:		
Buildings—10,000 sq. ft. @ $1.00 =		$10,000
Equipment		2,200
Total investment		$12,200
Cash Overhead Costs:		
Taxes	$350	
Insurance	150	
Repairs	300	800
Building depreciation $10,000 @ 5% =	500	
Equipment depreciation $2,200 @ 20%	440	940
Interest on investment $12,200 @ 5%		610
Total overhead costs		$2,350

NEW GRAIN ELEVATOR

BRYANT, OHIO — The Williams County Farm Bureau Cooperative Assn. has started construction of a grain elevator near Montpelier, Ohio. It has been reported that the $350,000 elevator will have storage capacity for 300,000 bu. There will be 13 cement silos 20 ft. in diameter and 100 ft. high. A grain bank operation is planned in connection with the new elevator.

SERIOUS FIRE AVERTED

ST. ALBANS, VT. — Quick action by plant employees prevented what might have been serious damage when they discovered a fire in the grain elevator shaft of a building at the St. Albans Grain Co. It was reported that friction caused a belt to overheat and start burning, with the result that some loose grain in the elevator was ignited. Feed plant employes doused the blaze, but a short time later smoke was seen in a storage bin on the fourth floor and firemen were called to finally conquer the flames coming from the badly damaged elevator shaft belt.

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809 W. 58th Street, Chicago 21, Ill.

PANEL DISCUSSION—G. R. Peterson (right), general manager of the feed division of the Pillsbury Co., Clinton, Iowa, moderated a panel discussion on industry sales changes at home and abroad for visitors at the recent National Broiler Conference in Dallas. Members of the panel included David Hume (left), Foreign Agricultural Service of the U.S. Department of Agriculture, and A. C. Nielsen, Jr. (center), president of the A. C. Nielsen Co., Chicago.

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UP OR DOWN

By Dr. Leonard W. Schruben, Agricultural Economist, Kansas State College

Changes in Livestock and Poultry Numbers

A few weeks ago you were reading headlines about the large increase in the number of livestock on farms in the U.S. What does this increase mean to the commercial feed business? What does it hold for the future of the livestock industry?

It would appear as though the commercial feed industry may be on the eve of its greatest expansion. This may be brought about by two factors which seem of prime importance. One is the expanding number of livestock to be fed, and the other is the ability to bring to livestock feeders the advantages of technological discoveries in nutrition through the use of commercial feed.

A disadvantage which most likely will be felt by business firms serving agriculture is the almost certain decline in livestock prices. The big question is "When?" As livestock prices decline, farmers are more likely to "make do" what is raised on their farms, even though it might not necessarily be most profitable.

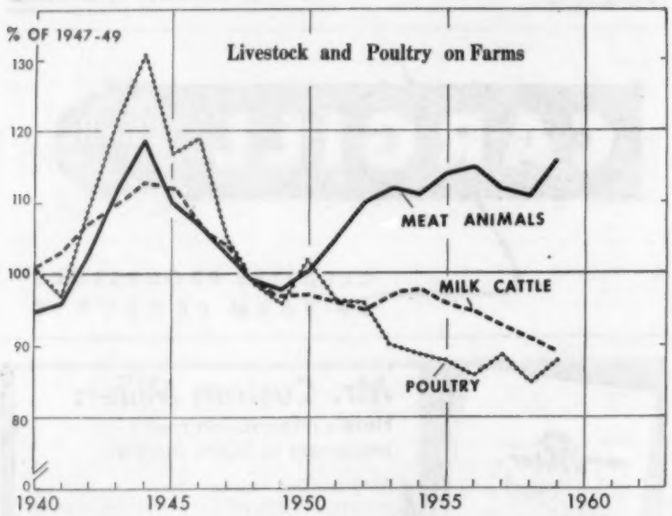
To give you a picture of the changing livestock pattern we have prepared Exhibit 1. Here is shown the changing pattern in livestock as a percentage of the immediate post-war years of 1947-49.

Notice the expansion in meat animals since 1949. More hogs and cattle are in prospect, as both cycles are in the upward phase. Even sheep numbers are holding steady after a long-time down trend.

For milk cows and poultry, it's a different story. For both, the trend has been down since World War II. Greater production per cow and per bird has characterized these industries. The commercial feed industry can be proud of the part it has had in bringing to agriculture advances in nutritional knowledge.

Of course, you can't rest on your laurels. If you stand still you will be left behind. Right now, you need to be making a record of performance. You need to deliver the goods. As hog and cattle cycles force prices lower, you may have established your ability to help farmers cut costs. For certain, they will need all the help they can get along this line. It's good business for you too!

EXHIBIT 1. Changes in livestock and poultry numbers on farms in U.S. since 1940.



Report Shows Growth Of Aeration Systems

DES MOINES—The growing interest nationwide in grain aeration systems is indicated in a report on recent installations announced by Hot Spot Detectors, Inc., Des Moines.

The firm announced 102 installations in 15 states as follows: Kansas, 31; Nebraska, 15; Texas, 15; Oklahoma, 10; Arkansas, 10; Colorado, 4; North Dakota, 3; South Dakota, 3; Illinois, 3; Missouri, 2; Iowa, 2; Wyoming, 1; Indiana, 1; Ohio, 1, and New Jersey, 1.

TAKES OVER FEED FIRM

IDA GROVE, IOWA—Frank T. Lee announces that he has purchased the interests of his father, C. L. Lee, and his brother, Edward M. Lee, in the feed manufacturing firm of C. L. Lee & Sons here. The name has been changed to Lee Feed Co.

California Reports Cut in Barley Usage; Use of Milo Expands

SAN FRANCISCO—A comparison of April 1 report of barley stocks on hand with the Jan. 1 report, indicates that the usage of barley in California in the last quarter has been only about 108,712 tons total, according to the Stockton Grain Exchange.

This figure is reported to be considerably below what has always been considered a normal usage for California. The active traders usually consider about 100,000 tons a month as the normal usage.

The replacement of barley with milo had been anticipated because of the favorable price relationship, according to Edwin A. Kauppila, secretary. Evidently milo is playing a bigger role in California feeds than most people realize, he said. This could account for the apparent small disappearance of barley.

The tightness in the current barley market appears to be mostly the result of the lack of offerings of heavier test-weight barley, according to reports. It is common knowledge that the 1958 crop of California barley was generally of low test weight. There is probably no lack of offerings of that type of barley currently.

According to the crop reports as of April 1, the estimated production of barley in California is almost 1.6 million tons. This estimate was based on the soil conditions, moisture, and general conditions.

L. M. Clarke, statistician of field crops, said recently that this is the most critical time in the development of the California crop. A good rain would produce a crop far in excess of this estimate, if the rains should come. Also, if there is no moisture soon in California, he feels his estimate may be quite high.

His opinion is that the southern part of the state is hurt anyway, but the northern part of the state still has a chance to produce a fair crop with timely moisture.

President Elected By Georgia Concern

MALONE, N.Y.—Joseph F. Trudeau, vice president, treasurer and one of the original founders in 1949 of International Stock Food Corp., Waverly, N.Y., was elected president of the International Stock Food Corp. of Georgia, an affiliate of the Waverly ISF, at the recent annual stockholders and directors meeting at Malone, N.Y.

J. F. Trudeau

ISF of Georgia has a warehouse at Cairo, Ga., and will maintain branch sales offices at Waverly.

Mr. Trudeau, born in Alberta, Canada, entered the grain business in 1947 with Trudeau & Brothers and in 1949 helped organize ISF of Malone, N.Y. The corporation was moved to Delhi, N.Y., where it remained until relocation last year at Waverly.

Elected to serve as officers with Mr. Trudeau are J. G. Forest, vice president-treasurer, and Robert G. Brefka, secretary.

Supervisor Named

ITHACA, N.Y.—Robert G. Grunder, Homer, N.Y., has been named to supervise field work in the started pullet program at Babcock Poultry Farm, Inc., according to C. E. Dayton, general manager.

After graduation from Corning Free Academy, Mr. Grunder served in the navy and was graduated from New York State Agricultural and Technical Institute at Alfred, where he majored in agriculture. Before joining the Babcock firm, he was farm service man for a major feed firm.

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BACKED BY MORE THAN 100 YEARS EXPERIENCE IN FEED AND GRAIN PROCESSING MACHINERY

BARNARD & LEAS Manufacturing Company INC.

1219 Twelfth Street S.W. EMpire 5-1481 Cedar Rapids, Iowa

FEED ADDITIVE

(Continued from page 1)

ers for steers fed or implanted with stilbestrol. Such a discount exists even though evidence indicates that little or no reduction in carcass quality occurs when this drug is used according to directions. Packers, however, say the markdown is for lower carcass quality caused by too-rapid growth, poor fat marbling and too much 'bark' or outside fat. Diallyl-fed steers had none of these effects."

(E. J. Hennessey of Armour & Co., Chicago, which has developed the additive, said that it is not possible now to estimate the marketing date for the product because of the time which elapses between the first reports of research results and the commercial availability of a product which requires Food and Drug Administration clearance. The chemical is a metabolic drug described as a non-estrogenic nitrogen retention substance.)

An additional increase in rate of gain and feed efficiency was obtained when either the B-vitamin choline or Dynafac was added to rations containing diallyl, Dr. Dyer reported.

He said the diallyl studies were 106-day feedlot trials with 48 steers. Average increase in rate of gain was .3 to .4 lb. per day for the diallyl-fed group. Best results were obtained from the addition of 25 mg. of diallyl daily.

Increased weight gains, it was indicated, added up to about $9 profit per steer from use of the additive. Increased feed efficiency cut feed costs by about $4, for a total net of $13 per animal over the cost of the additive, the researchers reported.

Earlier feeding trials, they said, showed that choline and Dynafac gave an added-on increase of 15 and 11% in rate of gain.

Dr. Dyer was assisted in the research project by Dr. W. E. Ham, biochemist, and E. F. Rupnow, meat specialist, both of the WSC department of animal science. The study was supported in part by a grant from Armour & Co., Chicago.

(A more complete summary of the Beef Cattle Day reports will appear in a subsequent issue of Feedstuffs.)

EGG HEARING

(Continued from page 1)

trade reports did not reflect the actual price offered producers. Mr. Wagner stated that the big chain buyers ignored published prices and told producers flatly: "Here is our offer. Take it or leave it."

The New Jersey delegation charged that it suspected price fixing on exchanges, and another witness urged that USDA be empowered to fix minimum prices on mercantile markets for eggs.

Mr. Wagner said integration within the poultry industry was hurting the "small operator," those with flocks of 10,000-20,000 layers. He said also that chain store operation reflected 65% of the marketing of shell eggs in his area and that the effect of their buying power controlled egg prices to the producer.

Congressman Brown, not a member of the agriculture committee, but with the collateral interest of his House subcommittee on small business, got into the act and intervened to question a broiler producer from Alabama who asked for prompt federal action.

Mr. Brown's questioning concerned previous evidence produced at small business subcommittee hearings concerning concentrated buying power of super markets and chains. In the course of his questioning, Mr. Brown tried to develop conclusions to the effect that it would be cheaper for the federal government to buy hens off farms than to enter into end product surplus removal programs.

As they say in France, "The more the change, the more the same." During the last war, the War Food Administration, at one point when carbohydrates and vegetable proteins were scarce, contemplated a chicken-buying program at some fixed price per hen. It took considerable telling to tout the war food administrator off this pitch.

Demands from Others

An Alabama hatcheryman from Guntersville demanded also immediate relief by the federal government. He said he made $10,000 last year from his operation, but for the current year he was out-of-pocket by $20,000.

This witness, Charles Holder, charged that super-market pricing methods—which he dubbed a two-price system—was contributing to the ruin of the small farm operators when the stores put on weekend sales of broilers at 29¢ lb., while during the week they priced the same product as high as 42¢. He implied that the super-market buyers had been using weekend price levels as a buying guide from the producers.

Some observers here believe that these hearings may be just a buildup for criticism of Secretary Benson for his failure to step into the broiler-egg market with vigorous buying by USDA for all and sundry relief or foreign aid programs.

It has been learned that Congressman Brown may attempt to ask the House agriculture committee to permit a joint session with the Brown subcommittee on small business in further hearings on poultry and egg problems.

One may conclude only, from the vain efforts set forth here thus far this week, that the whole stage is one of beating down Ezra Benson as a mean man who won't protect the small farmer.

WOOLLEY

(Continued from page 4)

Mills' Oklahoma City mill, he became milling superintendent at Wichita Falls, Texas, in 1944. That same year, he transferred to the company's soybean processing plant at Belmond, Iowa, where he served in plant management positions until 1950—with time out for service in World War II.

From 1950 until 1953, Mr. Woolley was director of production and engineering for the chemical division, headquartering in Minneapolis. He then moved to the flour division, serving successively as general plant superintendent, manager of the General Mills plant at Buffalo, N.Y., and director of production for the division.

Mr. Woolley attended Washburn University at Topeka, Kansas, as well as Kansas State College, where he received his B.S. degree in science in 1941. He also completed courses in personnel and business management at Oklahoma City University, and the University of Oklahoma Extension in Oklahoma City.

Alfalfa Dehydrators Meet in Wichita

WICHITA, KANSAS—Alfalfa dehydrators from Kansas, Colorado and Oklahoma met at the Broadview Hotel in Wichita April 17 to discuss mutual problems and elect officers. Wilson Liggett, Harry M. Liggett Co., Topeka, Kansas, was elected president. Fritz Pampas, Noria Mills, Lawrence, Kansas, was elected vice president, and Russell Ryher, Ryher Milling Co., McClave, Colo., was named secretary-treasurer.

It was reported that green bugs and spotted alfalfa aphids had caused setbacks in many of the alfalfa fields in Kansas and Oklahoma. Other topics discussed were the price of hay that dehydrators will have to pay this season, use of Santoquin and the six-day work week.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
February 21	1,229	406	737	877	168	868	1,769	1,967
February 28	1,164	401	840	816	176	829	1,927	1,814
March 7	1,194	524	835	765	197	849	1,962	1,941
March 14	1,221	596	962	783	197	821	1,851	2,046
March 21	1,243	519	787	873	154	883	2,051	1,886
March 28	1,231	496	690	961	183	845	1,931	2,084
April 4	1,229	597	985	877	190	885	1,914	2,021
April 11	1,187	578	865	911	182	882	1,833	1,904
April 18	1,215	598	927	871	218	748	1,985	1,729
April 25	1,350	602	735	930	173	711	1,720	1,914

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
February 21	1,129	586	3,070	373	6,419	239	3,202	2,302
February 28	1,269	700	3,214	360	6,626	246	3,228	2,308
March 7	1,295	680	3,143	357	6,888	263	3,278	2,469
March 14	1,326	625	3,164	437	7,096	232	3,708	2,408
March 21	1,219	731	3,384	377	7,305	239	3,514	2,593
March 28	1,273	678	3,376	379	7,440	216	3,661	2,609
April 4	1,356	637	3,307	413	7,173	264	3,712	2,540
April 11	1,247	676	3,332	375	7,382	214	3,640	2,657
April 18	1,072	681	3,287	390	7,477	220	3,600	2,633
April 25	1,025	694	3,313	330	7,319	193	3,767	2,690

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1959	Total 22 areas 1958
February 21	3,377	511	2,288	393	236	1,130	33,471	30,777
February 28	3,392	509	2,267	343	283	1,146	34,049	30,808
March 7	3,568	450	2,471	346	267	1,176	34,722	30,406
March 14	3,713	575	2,419	363	301	1,068	35,944	29,863
March 21	3,822	494	2,271	356	257	1,165	36,123	29,291
March 28	3,761	505	2,475	350	246	1,213	36,603	30,134
April 4	3,745	559	2,558	232	268	1,207	36,677	31,793
April 11	3,618	488	2,473	329	280	1,245	36,298	33,156
April 18	3,625	500	2,600	326	279	1,173	36,154	33,291
April 25	3,567	468	2,627	418	250	1,188	35,992	33,667

TEXAS MERGER

(Continued from page 1)

those who remain will be larger in size and equipped to render "top service" to customers. The trend toward direct sales by manufacturers to large specialized feeders will continue, he said, and there will be a further growth in sales of complete feeds to this type of customer.

The feed industry faces a public relations problem arising out of "misconceptions resulting from integration," Mr. Glennon declared. He expects a growth of political efforts to save small farms and an upswing in efforts to unionize contract growers.

Citing the steady volume growth of feed manufacture, now at a 40 million-ton level, up 57% in the past 10 years, Mr. Glennon estimated that 1959 volume will be 9% higher than the 1958 total, but said he expects some falling off in the rate of gain during the latter part of the year. Present forecasts are for a 62 million-ton total of feed manufacture in 1968, he said, with some of this coming from expanded animal numbers and some from a winning of customers not now using commercially prepared feeds.

He noted that last year feed manufacturers supplied 27% of the total feed consumption, compared with 22% in the 1948-50 period. "By 1975 this figure ought to be up to 35 to 40%," he said, and total formula feed volume will be near 70 million tons.

Other Speakers

Other featured speakers at the convention were Alvin E. Oliver, executive vice president, Grain & Feed Dealers National Assn., Washington, and C. H. Moseley, director, Commodity Stabilization Service, Dallas.

Mr. Oliver reviewed recent legislation proposals in Congress and stressed difficulties that would arise should Congress direct CCC to contract for long term storage of stocks on a bid basis. Mr. Moseley discussed current problems in CCC field operations and the outlook for storage space.

A crop report session indicated that there are many spots in Texas where wheat prospects are rather poor because of dry weather, although recent rains have been helpful in some places.

Approximately 800 were registered for the convention, the largest attendance on record for the Texas meeting.

Officers Elected

Walter Blanton, Blanton Grain Co., Carrollton, was elected president of the new organization. Other officers are Truitt Kennedy, Cargill, Inc., Fort Worth, first vice president, and Warren G. LeBourveau, Mathis (Texas) Grain & Elevator Co., second vice president.

Ben Ferguson, Brackett Grain Co., Fort Worth, will serve as secretary-treasurer until July 1, when the new association will have a full-time secretary, Ray C. Bowden, who retired recently as executive vice president of the Grain & Feed Dealers National Assn.

Directors chosen for one year are: J. C. Ledwig, Ledwig Elevators, Inc., Groom; George Setliff, Setliff Elevator, Turkey; H. R. Crouch, McGregor (Texas) Milling & Grain Co.; Carl McWhirter, Paris (Texas) Milling Co.; Clark Miller, Public Elevator, Corpus Christi.

Directors elected for two-year terms are: James Goddard, Champion Milling Co., Timpson; W. A. Gandy, Paymaster Feeds, Abilene; B. C. Harnisch, Pioneer Flour Mills, San Antonio; C. W. Cassidy, Jr., Cassidy Feed Mills, Richardson; N. K. Parrish, N. K. Parrish Co., Lubbock, and Marvin Gilbreath, Wiemar.

Resolutions

In addition to the usual resolutions of respect, resolutions of thanks to the Ft. Worth grain trade, Hotel Texas and its staff and the Commodity Credit Corp., the Texas Grain & Feed Assn. adopted the following resolutions:

1. Asking railroads for a **uniform** percentage cut on all grain rates and to equalize the domestic and export wheat rates.

2. Asking USDA to establish a grain and feed market service in Texas.

3. Opposing certain proposed changes in the Wage-Hour Law. The proposed changes, it was said, are part of the Kennedy labor bill in the Senate and would eliminate seasonal exemptions as allowed under the present Wage-Hour Law and "for all practical purposes would eliminate retail exemptions as we know them now." Copies of the resolution were to be sent to interested persons in both the House and Senate.

4. A resolution of thanks and a standing ovation for nine years of service as secretary-treasurer of the Texas Grain & Feed Dealers Assn. were given to Ben M. Ferguson; and a like resolution of thanks and an ovation were given to Ben E. Schmitt for his service to Texas feed manufacturers.

W. F. Ryan Resigns

LOUISVILLE, KY.—W. Frank Ryan, after 25 years as a distillery buyer, starting with the old Frankfort Distillery and remaining with the Seagram-Four Roses interests after Seagram purchased Frankfort, has resigned his position and plans to establish a brokerage concern, to handle grains, malt and distillers' supplies. In recent years, Mr. Ryan has headed the Seagram grain department, purchasing grains for the Seagram plants in this area and also selling the company's production of distillers dried grains.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Denver: Demand fair; trend steady; supply ample; 300 D, 2,250 A 22¢ lb.

Boston: Demand fair; supply adequate; 600 D, 1,500 A 17½¢ lb.; 300 D, 2,250 A 18¢; 300 D, 1,500 A 16½¢; 300 D, 750 A 14¾¢; 400 D, 3,000 A 20¢; 300 D, 3,000 A 19½¢; 75 D, 750 A 14½¢.

New York: Demand fair; trend steady; supply limited; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 13½@15½¢, 1,500 A 15½@17¢, 2,250 A 17½@20¢, 3,000 A 19@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19½¢; f.o.b. Massachusetts, New York or Pennsylvania.

Minneapolis: 10,000 A 35¢ lb.; 300 D, 2,250 A 21½¢ lb.; 300 D, 1,500 A 20½¢ lb.; 300 D, 75 A 18½¢ lb.

Chicago: Demand fair; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7½¢ a million units of vitamin A, L.c.l., packed in 55-gal. drums, f.o.b. Chicago, drums included.

ALFALFA MEAL

Boston: Demand fair; supply adequate; dehydrated, 17% $82; suncured, 13% $48, nominal.

Los Angeles: Demand fair; trend steady; supply ample; dehydrated meal, 17% protein, 100,000 A $51, bulk; dehydrated pellet meal, 17% protein, 100,000 A $53, bulk; suncured meal, 15% protein $42@43, bulk; suncured crumbles, 15% protein $44@45, bulk.

Portland: Demand good; trend higher; supply scarce; 15% suncured $42, dehydrated $66.50.

New Orleans: Demand good; trend steady; supply light; vitamin A, 17% $79@81; pellets $77@79.

Denver: Demand fair; trend steady; supply ample; $52.

Philadelphia: Demand and supply fair; trend unsettled; 17% dehydrated $78.

Omaha: Demand good; trend strong; supply tight; 17% dehydrated, 100,000 A units, bulk pellets $60; sacked meal $65, Omaha basis.

Ft. Worth: Demand good; limited offerings for immediate; 20%, 150,000 A $68; 17%, 100,000 A $64, truck.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $78.50.

Kansas City: Market firm, with good demand and supplies very tight; some new crop Kansas offerings this week for premium quality at strong prices; substantial volume of new offerings not expected for some time as carry-over is so low that blending will not be possible for quality material; first cutting in many areas is expected to be tight; quotations, dehydrated alfalfa meal with 17% protein and 100,000 units of vitamin A guaranteed on arrival: reground pellets $65 sacked, greased meal $67 sacked, pellets $60, bulk; 18% protein, 125,000 units of A meal $69 sacked; 20% protein, 150,000 units of A $70 sacked, bulk pellets $68; suncured demand slow and offerings light, No. 1 fine ground $35, No. 1 ¼-in. $32.50@33, No. 2 ¼-in. $29, sacked.

Buffalo: Demand fair; trend steady; supply fair; $82, Boston.

Minneapolis: Tight supplies continue; demand fair; trend firm; reground pellets, 17%, 100,000 units vitamin A $70; oiled reground $72.

Chicago: Demand slow; supply light; 17% dehydrated, with 100,000 units vitamin A guaranteed per ton $71@71.50; 15%, No. 1 fine ground suncured, per ton, no quotes.

Memphis: Demand good; trend steady to lower; supply light; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $65.

Seattle: Demand fair; trend steady; supply good; 15% protein suncured $44, truck loads; 136,000 A unit dehydrated $69, truck loads.

St. Louis: Demand slow; trend steady; supply ample; suncured, 13% fine $39; 17%, 100,000 A $70.

ANIMAL FAT (STABILIZED)

St. Paul: Price moved up to 7¼¢ lb., f.o.b. producer's plant, for bleachable fancy tallow this week and the undertone is firm; feed demand for tallow is steady.

Boston: Demand fair; supply good; tallow 7¾¢ lb.; yellow grease 7¢ lb.

Louisville: Demand fair; trend steady; supply normal; bleachable fancy 7¼¢ lb.; white tallow 7¾¢ lb.; yellow grease 6¾¢ lb.

New Orleans: Demand fair; trend steady; supply adequate; 7@7½¢ lb., tank cars.

Ft. Worth: Demand good; firm undertone; supply rather tight; prime tallow, tank cars 7@7¼¢ lb.; drums 8½@8¾¢ lb., f.o.b. north Texas packing plants with returnable drums.

Kansas City: Demand fair; trend steady; supply adequate; 6¾¢ lb., tank cars, for prime tallow.

Chicago: Demand quiet; trend higher; supply ample; bleachable fancy tallow, tank, truck or carlots 7¾¢ lb.; yellow grease 7¢ lb.

San Francisco: Demand fair; supply ample; bleachable fancy 7¾¢ lb.; yellow grease 7½¢ lb.

Atlanta: Demand good; trend steady; supply barely ample; 7¢ lb., bulk.

BARLEY FEED

Boston: Demand slow; supply ample; $45.

Los Angeles: Demand slow; trend easier; supply adequate; standard rolled $3.22½ cwt., standard ground $3.22½ cwt.

Portland: Demand slow; trend lower; supply ample; rolled $62; ground $60.

New Orleans: Demand slow; trend unchanged; supply fair; $64@65.

Philadelphia: Demand slow; supply fair; pulverized $50.50.

Ogden: Supply average; rolled $56@58; whole barley $42@47.

San Francisco: Demand fair; supply ample; rolled $65.60; ground $64.50.

Chicago: Demand quiet; supply adequate; $37.

Milwaukee: Demand good; supply fair; needles 96¢@$1.08 cwt.; ground screenings $28.

Baltimore: Demand fair; supply ample; $47.50.

Seattle: Demand fair; trend steady; supply good; $50.50, bulk, truck lots.

BENTONITE (SODIUM)

Denver: Demand fair; trend good; supply ample; $23.

Cincinnati: Demand steady; supply adequate; fo.b. Cincinnati, minimum 30-ton carlots: 80 granular $31.50; 200 mesh fine $31.

Chicago: Demand steady; trend firm; supply adequate; f.o.b. Wyoming and South Dakota shipping points: granular, 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots, 80 granular $13.50 net; 200 mesh, fine $13.25 net.

BLOOD FLOUR

Louisville: Demand fair; trend steady; supply normal; $120@125.

BLOOD MEAL

Los Angeles: Demand fair; trend steady; supply adequate; $7.50 a unit of ammonia.

Portland: Demand good; supply ample; trend unchanged; $130.

Louisville: Demand fair; trend steady; supply ample; $120@125.

New Orleans: Demand slow; trend unchanged; supply fair; $120@125.

Ogden: Supply average; $110 in 100-lb. bags.

San Francisco: Demand good; supply tight; $8 a unit of ammonia.

Chicago: Demand and supply fair; guaranteed 80% protein, in 100-lb. bags $137.50.

BONE MEAL (STEAMED)

Boston: Demand and supply steady; $90.

Los Angeles: Demand better; trend firm; supply scarce; imported $76, in 20-ton lots.

Portland: Demand good; supply ample; trend unchanged; $100.

Louisville: Demand slow; trend steady; supply fair; $105@115.

New Orleans: Demand slow; supply light; trend steady; $105@110.

Denver: Demand good; trend strong; supply nil; $110, nominal.

Ft. Worth: Demand fair; supply light; $90, local manufacture.

Cincinnati: Demand fair; trend steady; supply adequate; $110, f.o.b. Cincinnati.

Buffalo: Demand good; trend strong; supply limited; $100, sacked.

San Francisco: Demand good; supply ample; $75.

Chicago: Demand fair; supply very limited; in 50-lb. bags $105.

Seattle: Demand good; trend firm; supply limited; $87, ex-dock, truck lots.

BREWERS DRIED GRAINS

Boston: Demand fair; supply good; 22% $52.50, 24% $55, 26% $59.

Los Angeles: Demand fair; trend unchanged; supply limited; $49.50 bulk, $53.50 sacked.

Louisville: Demand fair; trend weak; supply good; $50, off $2.

New Orleans: Demand fair; trend steady; supply ample; $52@53.50.

Philadelphia: Demand and supply fair; $59.50.

Ft. Worth: Demand fair; supply moderate; 26% protein $56.

Cincinnati: Demand poor; trend lower; supply adequate; $55.

Milwaukee: Demand good; supply fair; $49.

San Francisco: Demand fair; supply ample; $54.

Buffalo: Demand fair; trend steady to lower; supply good; $49, bulk, Boston.

Chicago: Demand fair; supply good; 26% $48.50@49.

St. Louis: Demand good; trend lower; supply adequate; $47.

BREWERS DRIED YEAST

Boston: Demand and supply steady; 11¢ lb.

Los Angeles: Demand fair; trend unchanged; supply limited: 10¢ lb. in 5-ton lots; 11¢ lb. in 1-ton lots; 12¢ lb. in less than 1-ton lots.

Portland: Demand good; supply ample; trend unchanged; 8¾¢ lb.

Louisville: Demand slow; trend steady; supply ample; 10@10½¢ lb.

Denver: Demand light; trend steady; supply ample; 9¢ lb., f.o.b. Golden, Colo.

Omaha: 10½¢ lb.

Buffalo: Demand fair; trend steady; supply limited; $10.75 cwt.

San Francisco: Demand fair; supply good; 10¢ lb.

Chicago: Demand good; supply limited; trend steady; carlots 9½@10½¢ lb.; l.c.l. 9¾@12¼¢ lb.

St. Louis: Demand good; trend steady; supply limited; carlots 9½¢ lb.; ton lots 10½¢ lb.; less than ton lots 11½¢ lb.

Milwaukee: Demand good; trend steady; supply limited; carlots 10@11¢ lb.; l.c.l. 10½@12¼¢ lb.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

Seattle: Demand slow; trend steady; supply ample; $12 cwt.

BUTTERMILK-CONDENSED

Boston: Demand slow; supply tight; 3½¢ lb.

Los Angeles: Demand fair; trend unchanged; supply adequate; 5¼¢ lb. in 100-lb. lots; 4½¢ lb. in 500-lb. lots.

Louisville: Demand dull; trend steady; supply light; nominal $4.25 cwt.

New Orleans: Demand slow; supply normal; trend steady; $4.25@4.30 cwt.

Wichita: Demand slow; supply good; $2.90 cwt. in barrels.

Philadelphia: Demand slow; supply light; $4.25 cwt.

Ogden: Supply average; $4.40, 100-lb. drum.

San Francisco: Demand fair; supply good; $5 cwt.

Chicago: Demand fair; supply good; in carlots $3.25@3.50 cwt.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight)

New York: Crystals $15.28, flour $10.28.
Buffalo: Crystals $16.11, flour $11.11.
Toledo: Crystals $17.96, flour $12.96.
Boston: Crystals $16.53, flour $11.63.
Limecrest, N.J.: Crystals $10.50, flour $5.50.

CALCIUM CARBONATE

Los Angeles: Demand fair; trend steady; supply ample; $10.25.

Cincinnati: Demand fair; trend steady; supply adequate; $8@9 cwt.

Chicago: Demand steady; trend firm; supply adequate; fine grind, plain, 100-lb. bags $9.54; bulk, in hopper cars $7.54; bulk in boxcars $8.04; granular grind $1 premium.

Minneapolis: Fine grind, 50-lb. bag $12.25, 100-lb. bag $11.50; bulk, boxcar $10; bulk hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

CHARCOAL

Boston: Demand and supply steady; $100.

Los Angeles: Demand fair; trend unchanged; supply limited; hardwood poultry $156 in less than ton lots; $144.40 in ton lots.

San Francisco: Demand steady; supply ample; $141.

Chicago: Demand quiet; supply adequate; poultry charcoal $110 in 50-lb. multiwalls.

COCONUT OIL MEAL

Los Angeles: Demand slow; trend firmer; supply adequate; copra cake $76@78, bulk.

Portland: Demand slow; supply ample; trend unchanged; $68.

San Francisco: Demand good; supply tight; solvent $63; expeller $80.

Seattle: Demand fair; trend easy; supply ample; $76, via truck (California).

COD LIVER OIL (FORTIFIED)

Boston: Demand fair; supply adequate; 600 D, 2,250 A 19¢ lb.; 300 D, 3,000 A 20½¢; 300 D, 2,250 A 18½¢; 600 D, 1,500 A 18¢; 300 D, 1,500 A 17¢.

New York: Demand limited; supply fair; trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15½¢, 1,500 A 15½@20¢, 2,250 A 18½@21¢, 3,000 A 21½@23¢; 600 ICU, 1,500 A 17½@19½¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

CONDENSED FISH SOLUBLES

Boston: Demand active; supply scarce; 5¢ lb., nominal.

Los Angeles: Demand fair; trend unchanged; supply limited; 5¢ lb.

New York: Demand fair; trend steady; supply tight; 5¢ lb., f.o.b. eastern shore.

New Orleans: Demand light; trend steady; supply light; 50% solid $108@111.

Denver: Demand fair; trend steady; supply ample; dried $182.40, f.o.b. Denver.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $51.80, meal $79.80.
Atlanta: Feed $57.98, meal $85.98.
Birmingham: Feed $56.64, meal $84.64.
Boston: Feed $56.84, meal $84.84.
Chicago: Feed $45, meal $73.
Cleveland: Feed $53.14, meal $81.14.
Denver: Feed $55.51, meal $83.51.
Ft. Worth: Feed $53.96, meal $81.96.
Indianapolis: Feed $50.36, meal $78.36.
Kansas City: Feed $45, meal $73.
Louisville: Feed $52.21, meal $80.21.
New Orleans: Feed $55.20, meal $83.20.
New York: Feed $56.43, meal $84.43.
Norfolk: Feed $55.71, meal $83.71.
Philadelphia: Feed $56.02, meal $84.02.
Pittsburgh: Feed $53.96, meal $81.96.
St. Louis: Feed $45, meal $73.

CORN OIL MEAL

Louisville: Demand slow; trend weak; supply light but ample; $56.45, off $2.

Cincinnati: Demand fair; trend higher; supply adequate; $56.

COTTONSEED OIL MEAL

Boston: Demand slow; supply ample; $82.50@83.

Los Angeles: Demand and trend steady; supply tight; $71@72, bulk.

Portland: Demand slow; trend higher; supply ample; $78.

Louisville: Demand fair; trend easy; supply ample; old process $69, new process $68.

Cincinnati: Demand poor; trend lower; supply adequate; $70.50.

New Orleans: Demand fair; trend steady; supply adequate; $77@77.50.

Denver: Demand fair; trend steady; supply ample; $70.60.

Wichita: Demand poor; supply sufficient; 41% old process $72.

Philadelphia: Demand dull; trend unsettled; supply fair; $80.

Omaha: Demand slow; trend steady; supply ample; 41% solvent $67.10, bulk.

Kansas City: Demand slow in this area as more costly than soybean meal; market steady; supply ample; old process and solvent $63, sacked, Memphis.

Ft. Worth: Demand slackening; supply insufficient; 41% old process $71, prompt; pellets $2 additional; cottonseed hulls $19.

Ogden: Supply normal; 41% $77@82.

San Francisco: Demand good; supply tight; 41% $77.70; 44% $80.70.

Buffalo: Demand poor; trend steady to lower; supply adequate; $80, Boston.

Memphis: Demand slow; trend lower; supply limited; prime 41% protein, old process $62.50; new process, 41% solvent $62.

Chicago: Demand slow; supply ample; hydraulic $63.50; solvent $62.50, Memphis basis.

Seattle: Demand fair; trend firm; supply limited; $88, truck lots, 41% expeller process.

Atlanta: Demand fair; trend steady; supply ample; 41% $69@70.

St. Louis: Demand slow; trend steady; supply adequate; solvent $67.

CURACAO PHOSPHATE

New York: Demand steady; ground Curacao phosphate in 100-lb. bags $48, f.o.b. cars or trucks, New Orleans, Jacksonville, Fla., or Philadelphia.

D ACTIVATED ANIMAL STEROL (POWDERED)

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 18¢ lb., warehouse.

Kansas City: Demand fair; trend steady; supply adequate; 1,500 ICU 9¾@10¢ lb.; 3,000 ICU 11½@12¢ lb. in ton lots.

New York: Demand and supply good; trend steady; price per lb. in 50- and 100-lb. bags or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand good; supply fair; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Tupelo, Miss.: Minimum phosphorus 13%, minimum calcium 31%, maximum fluorine .12%, $51 net ton, f.o.b. Tupelo in 100-lb. multiwall bags, $48 in bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum calcium 36%, maximum fluorine .18% $69.12 net ton, f.o.b. Wales in 100-lb. multiwall bags, $3 less in bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $71.50, net ton, f.o.b. Houston, 100-lb. multiwall paper bags; $68.50 in bulk.

Coronet, Fla.: Minimum phosphorus 18%, minimum calcium 31%, maximum calcium 34%, maximum fluorine .18%; carlots $63.50, truck load $64.25, net ton, f.o.b. Coronet in 100-lb. multiwall bags $60.50 and $61.25 in bulk.

Cincinnati: 18% phosphorus $81; 13% phosphorus $64.98, f.o.b. Cincinnati.

DICALCIUM PHOSPHATE

Chicago: Stock food grade, 18.5% phosphorus, 20,000 lb. or more $83.25 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn.; less than 20,000 lb. $93.25; 21% phosphorus, 20,000 lb. or more $94.50, basis Chicago Heights and Nashville; less than 20,000 lb. $104.50; bulk boxcars or hoppers $3 net ton less than bagged material.

Bonnie, Fla.: Minimum phosphorus 18½%, granular $83.25; freight equalized with closest producing point, carload basis.

Texas City, Texas: 18.5% minimum phosphorus, 21% minimum calcium, 24% maximum, granular $77.70 net ton, f.o.b. Texas City in 100-lb. multiwall bags; bulk, boxcars and hoppers, $3 net ton less than bagged material.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Minneapolis: 18.5% phosphorus, 24% calcium granular or fine ground $94.10, delivered; $3 less in bulk.

Trenton, Mich.: Minimum phosphorus 18½%, maximum fluorine .03% guaranteed $83.25, f.o.b. Trenton in 100-lb. multiwalls; minimum phosphorus 21%, maximum fluorine .03% guaranteed $94.50, f.o.b. Trenton in 100-lb. multiwall bags.

Portland: Demand good; supply ample; trend unchanged; $115.

Cincinnati: 18¼% phosphorus $92@93.

Denver: Demand fair; trend steady; supply ample; $93.60.

DISTILLERS DRIED GRAINS

Boston: Demand good; supply fair; light $63, dark $64.

Louisville: Demand fair to good; trend steady; supply fair; bourbon grains: light $54, dark $55, solubles $77, all f.o.b. Louisville.

Cincinnati: Demand poor; trend lower; supply adequate; by truck $53.50.

Philadelphia: Demand slow; trend unsettled; supply light; lights $65, darks $66.

San Francisco: Demand fair; supply ample; solubles $85.
Buffalo: Demand fair; trend steady; supply fair; $59, bulk, Boston.
Seattle: Demand good; trend steady; none available; $67, truck lots.

DRIED BEET PULP

Boston: Demand good; supply fair; $59.50 @60.
New Orleans: Demand fair; trend steady; supply adequate; $60@61.
Denver: Demand good; trend steady; supply ample; $49.23.
Los Angeles: Demand good; trend steady; supply adequate; molasses $47.30, bulk.
Portland: Demand good; trend higher; supply limited; $56.
Ft. Worth: Demand slow; offerings light; carlots, 50-lb. papers $61.
Ogden: Supply normal; $44@48.
Buffalo: Demand fair; trend steady; supply fair; $60, Boston.
San Francisco: Demand good; supply fair; $51.50.
Milwaukee: Demand good; supply fair; plain $54, molasses $54.
Seattle: Demand good; trend firm; supply limited; $49, carlots.
Atlanta: Demand fair; trend steady; supply limited; $67.50.

DRIED BUTTERMILK

Los Angeles: Demand fair; trend unchanged; supply adequate; 11¾¢ lb.
Louisville: Demand slow; trend steady; supply light; 12@12½¢ lb.
New Orleans: Demand slow; trend unchanged; supply adequate; $11.50@12 cwt.
Ogden: Supply normal; $8.50, 100-lb. bag.
Buffalo: Demand good; trend steady; supply limited; $11.85 cwt.
San Francisco: Demand fair; supply ample; 11½¢ lb.
Milwaukee: Demand fair; supply fair; price steady at $10 cwt.
Chicago: Demand good; supply light; medium acid $10.75@11 cwt.; sweet cream $11@11.25 cwt., in carlots.

DRIED CITRUS PULP

Boston: Demand spotty; supply ample; $34, f.o.b. Florida points.
Los Angeles: Demand and trend steady; supply adequate; orange pulp $41, bulk; lemon pulp $40, bulk.
New Orleans: Demand fair; trend steady; supply ample; $35@40, f.o.b. Florida.
Buffalo: Demand poor; trend steady; supply adequate; $37.50, f.o.b. Florida points.
San Francisco: Demand and supply fair; meal $54.
Atlanta: Demand and supply good; trend steady; $35@40, f.o.b. Florida producing plants; meal $30@35.

DRIED SKIM MILK

New Orleans: Demand fair; trend firm; supply ample; $12@12.50 cwt.
Philadelphia: Demand slow; supply light; $12.50 cwt.
Ogden: Supply normal; $15.15, 100-lb. drum.
Boston: Demand good; supply scarce; 12¢ lb., nominal.
Los Angeles: Demand fair; trend unchanged; supply adequate; 14¢ lb. in less than ton lots; 13¾¢ lb. in ton lots.
Portland: Demand slow; supply ample; trend unchanged; 13¢ lb.
Louisville: Demand slow; trend steady; supply ample; 12¢ lb.
Cincinnati: Demand fair; trend steady; supply adequate; 10¾¢ lb.
San Francisco: Demand and supply fair; 13¾¢ lb.
Minneapolis: Demand good; supply fair; price firm at $11@11.25 cwt.
Buffalo: Demand fair; trend steady; supply ample; spray $10.65 cwt.
Chicago: Demand improved; supply light; in carlots $10.75@11 cwt.
Milwaukee: Demand and supply fair; $11 cwt.

DRIED WHEY

Boston: Demand steady; supply short; 5½¢ lb.
Los Angeles: Demand fair; trend steady; supply ample; $6.10 cwt. in carloads; $6.35 cwt. in l.c.l.
Portland: Demand slow; supply ample; trend unchanged; $7 cwt.
Louisville: Demand slow; trend steady; supply light; 6¾¢ lb.
Cincinnati: Demand fair; trend steady; supply adequate; $6.15 cwt.
New Orleans: Demand good; supply ample; trend steady; $5.50@6 cwt.
Denver: Demand fair; trend steady; supply ample; $6.05 cwt.
Philadelphia: Demand slow; supply light; $6.50 cwt.
Kansas City: Demand good; trend light; supply steady; $5.50 cwt., producers' plants for regular and partially delactosed.
Ft. Worth: Demand fair; supply adequate; carlots, standard $6, sacked, delivered; $6.25 ton lots, f.o.b. warehouse, Ft. Worth.
Ogden: Supply normal; $6.90, 100-lb. bag.
Seattle: Demand and trend steady; supply good; $6.40 cwt., ex-warehouse, l.c.l.
Minneapolis: Demand and supply fair; steady trend; $5.50 cwt., producers' points.
Chicago: Demand fair; supply ample; $5.50, f.o.b. plants.
San Francisco: Demand steady; supply good; $5.75 cwt.

FEATHER MEAL (HYDROLYZED)

Boston: Demand good; supply improved; $85, f.o.b. shipping points.
Los Angeles: Demand fair; trend steady; supply adequate; $1.25 a unit of protein.
Ft. Worth: Demand good; supply very limited; 85% to 87% protein $105, f.o.b. trucks, north Texas plants.
Atlanta: Demand good; trend steady; supply ample; $105.50, f.o.b. Georgia and Alabama producing mills.
Salisbury, Md.: Good demand; limited supply; $100 bulk, f.o.b. producers' plants.

FISH MEAL

Boston: Demand active; supply improving; $157.
Los Angeles: Demand steady; trend unchanged; supply tight; local production, 60% protein $2.45@2.50 a unit.
Portland: Demand good; trend firm; supply limited; $2.25 a unit of protein.
Louisville: Demand dull; trend steady; supply light; nominal $170.
Cincinnati: Demand fair; trend steady; supply adequate; $164.
New Orleans: Demand and supply light; trend steady; menhaden, 60% $162@164; scrap $158@159, f.o.b. Gulf.
Denver: Demand good; trend steady; supply very tight; $2.40 a unit of protein, f.o.b. West Coast.
Ft. Worth: Demand fair; limited offerings; 65% Peruvian $153, immediate, f.o.b. Houston.
Ogden: Supply normal; $2.20 a unit, f.o.b. Coast; 65% $172@174.
Seattle: Demand fair; trend steady; supply good; $2.33 a unit protein, truck lots (Canadian production).
Atlanta: Demand good; trend steady; supply very limited; 60% menhaden $135, f.o.b. Carolina producing mills, May-October, subject to catch.
Buffalo: Demand good; trend steady; supply ample; 60% protein menhaden $175 bulk, $180 sacked.
San Francisco: Demand good; supply tight; $2.35 a unit of protein.
Minneapolis: Fair demand; supply limited; trend steady; 60% blended fish meal $180, Minneapolis; 70% herring $2.22 a unit, West Coast.
Milwaukee: Demand and supply fair; 60% $160, Milwaukee.
Chicago: Demand good for new crop; supply light; eastern menhaden fish meal, 60% protein, new crop, Gulf $144 and eastern ports $140; scrap, Gulf $140 and eastern ports $137; western blended, 60% protein $2.35 a unit of protein; Canadian herring, 74% $2.30 a unit of protein, subject to production.

HAY

Boston: Demand and supply steady; No. 2 timothy $40@42.
Los Angeles: New crop, U.S. No. 1 $35@37, new crop U.S. No. 2 leafy $33@34, good demand for top quality; U.S. No. 2 green $28@30, U.S. No. 2 $24@26, demand just fair.
Portland: Demand good; supply limited; trend unchanged; $34.
Louisville: Demand dull; trend easy; supply good; buyer can just about write his own ticket; demand slightly better as result of start of racing here on April 25; top grades of fancy hay $25@30; lower grades $20@25; straw $18@20.
Cincinnati: Demand poor; trend steady; supply adequate; No. 1 timothy $24; No. 1 second cutting green alfalfa $31; mixed $27; wheat or oat straw $19.
Denver: Demand average; trend fair; supply ample; alfalfa, baled $24@25, first and second cutting.
Wichita: Demand poor; supply ample; prairie $15, alfalfa $12@18.
Philadelphia: Demand slow; supply light; $25@26.
Ft. Worth: Demand fair for alfalfa; practically all for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $38@40, No. 2 $36@38; prairie No. 2 $26@28; No. 2 Johnson grass $24@26, delivered Texas common points.
Ogden: Supply average; $1@1.25 bale; $18 ton in the barn.
Seattle: Demand fair; trend easy; supply good; alfalfa, U.S. No. 2 green (new crop) $28, truck lots.

HOMINY FEED

Boston: Demand fair; supply adequate; $59.50.
Louisville: Demand very dull; trend easy; plenty available, dealer holdings light; $49.
Cincinnati: Demand fair; trend steady; supply adequate; $51.50.
New Orleans: Demand fair; trend steady; supply fair; $52@52.50.
Kansas City: Demand fair; trend steady; supply very scarce; $42.50@43, bulk; $3.50 for sacks.
Seattle: Demand fair; trend firm; supply good; $56, carlots.
St. Louis: Demand slow; trend steady; supply limited; yellow $49.
Buffalo: Demand fair; trend steady; supply fair; $54.50, bulk, Boston.
Milwaukee: Demand good; supply fair; $49.50.
Memphis: Demand poor; trend steady; supply ample; white $47, yellow $49.
Chicago: Demand fair; supply good; $49.

LINSEED OIL MEAL

Boston: Demand very slow; supply light; $92.
Los Angeles: Demand slow; trend unchanged; supply limited; local production, 29% protein $72, bulk, nominal.
Portland: Demand slow; supply ample; trend unchanged; $87.
Louisville: Not much demand, not much offered; old or new process either at $88.50.
Cincinnati: Demand poor; trend steady; supply fair; new process $76.50; old process $86.
New Orleans: Demand slow; supply ample; trend steady; $82@86.
Denver: Demand and supply fair; trend steady; $78.50.
Wichita: Demand good; supply insufficient; 34% $88.
Philadelphia: Demand and supply fair; trend unsettled; 34% new process $82.35.
Omaha: Demand and trend steady; supply tight; 34% solvent $79.80 bulk; 32% old process, not available, Omaha basis.
Kansas City: Demand moderate; trend erratic; supply light for nearby; solvent meal $73, bulk, Minneapolis, for nearby shipment; $72 for next week's shipment.
Ft. Worth: Demand poor; supply limited for immediate shipment; 34% solvent $96, truck; 34% new crop old process, last half May-June $88, truck.
Minneapolis: A small amount of nearby available at $79.50, bulk, demand is quiet; last half May quoted at $65.
Chicago: Demand lighter; supply fair; solvent $79.50@80; expeller, no quotes, Minneapolis basis.
San Francisco: Demand fair; supply ample; $83.
Milwaukee: Demand good; supply tight; old process $94.50; new process $83.50, first half May; new process $71, last half May, all nominal.
Seattle: Demand fair; trend firm; supply limited; $90, carloads, 34% protein.

MALT SPROUTS

New Orleans: Demand fair; trend steady; supply adequate; $42@44.
Cincinnati: Demand fair; trend lower; supply adequate; No. 1 $39.
Boston: Demand and supply limited; $42.50.
Chicago: Demand slow; supply fair; uneven weight bags, No. 1 $33, No. 2 no quote; even weights $1@1.50 premium.
Milwaukee: Demand good; supply fair; odd weights $33.50, even weights $37.

MEAT AND BONE MEAL

New York: Demand and supply fair; trend downward; 50% $85, 55% $92.50, bulk; 50% $88, 55% $95.50, sacked.
Ft. Worth: Demand fair; supply sufficient; meat and bone, 50% $98@99, f.o.b. or delivered Ft. Worth.
Kansas City: Demand slow; trend easier; supply not large but sufficient to take care of buying needs; 50% meat and bone meal $97.50@100, bulk.
Omaha: Demand poor; trend steady; supply ample; $104.
Wichita: Demand moderate; supply sufficient; 50% $107.50, f.o.b. plant; 55%, no quotations, no offerings.
Denver: Demand slow; trend slow; supply ample; 50% $95 truck lots, $92 bulk lots.
New Orleans: Demand good; supply ample; trend steady; $105@106.50.
Cincinnati: Demand good; trend easy; supply fair; 50% meat and bone scraps $95.
Louisville: Demand fair; trend steady; supply good; $105@115.
Portland: Demand good; trend higher; supply limited; $2.15 a unit.
Los Angeles: Demand and trend steady; supply adequate; 50% protein $2.10 a unit.
Boston: Demand cautious; supply ample; $1.60 a protein unit; converted, 50% $92.50.
Ogden: Supply average; $105, in 100-lb. bags.
St. Paul: Demand improving; adequate supply; price off about $1 from previous week; 50% meat and bone meal $100@104.
Chicago: Demand fair; supply small; 50% protein $105.
San Francisco: Demand good; supply ample; $2.10 a unit of protein, bulk.
Buffalo: Demand fair; trend easier; supply ample; 50% meat scraps $95 bulk, $100 sacked.
Seattle: Demand good; trend steady; supply ample; $107.50, ex-warehouse, 50% protein.
St. Louis: Demand good; trend steady; supply short; $100.

MILLFEED

Minneapolis: Lack of buyers brought sharp drop in market; sacked bran off $2@2.50 and sacked middlings are down about $3, bulk also off sharply; sacked bran $42@42.50; sacked middlings $41@41.50; bulk bran $35@38; bulk middlings $35@36; red dog $49 sacked.
Kansas City: Demand slow, but somewhat better than earlier in the week for sacked feed; prices down $1@3 from week ago, but have shown some stability lately; bran $39.50@40, shorts $42@42.50, sacked; bran $34@34.50, middlings $34@34.50, shorts $37@37.50, bulk.
Wichita: Demand fair; supply sufficient; basis Kansas City: bran $40.25@40.75, shorts $44.25@44.75; bran and shorts declined $3.50, compared with the preceding week.
Ft. Worth: Demand fair; offerings sufficient; carlots, burlaps, bran $47.50; gray shorts $51; bulk middlings $44.50, delivered Texas common points; about $5 lower on bran and shorts and $4.50 lower on middlings, compared with previous week.
Chicago: After following different price paths the preceding week, both bran and standard midds. turned weaker during the week ending April 29. Buying power, while present to some degrees, seems to have dried up, and this in turn has been reflected in price declines of $2 on sacked bran and double that in bulk. On middlings, prices have been shaded around $3 on sacked and up to $5 ton on the bulk article, all compared with a week ago. Running time is on a somewhat limited basis which in itself may have prevented de-

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clines of even more severe character. As of mid-week, the decline seems to have been checked at least temporarily with some moderate revival in buyers' interest at the lower levels. Quotations: bran, sacked $47.50@48 and bulk $41.50; standard midds., sacked $46.50 and bulk $40; red dog, sacked $51.

Omaha: Demand poor; trend weak; supply ample; sacked bran $41; sacked gray shorts $44.50; bulk standard midds. $37.50.

Cincinnati: Demand fair; trend lower; supply adequate; bran and middlings $53.50.

St. Louis: Sacked, bran $44, shorts $47.50; bulk, bran $38.75, shorts $42.75, middlings $39.

Memphis: Demand fair; trend lower; supply ample; wheat bran $46.30, sacked; gray shorts $50.30, sacked; standard midds. $42.20, bulk.

Boston: Demand very slow; supply ample; bran $59.50, middlings $60.50.

Buffalo: The country trade in millfeeds was fairly good last week but lack of bulk demand from mixers continued to depress prices. Levels were quoted in a wide range, with some bidders below asking prices. The $8 sacked differential held unchanged. Bulk and sacked bran declined $4.50 and bulk and sacked middlings were down $6. Sacked red dog was off $1@5 and bulk was off $1. Quotations April 29: bulk bran $41.50@42.50, sacked $47.50@48.50; bulk middlings $43@44, sacked $49@50; bulk red dog $53@53.50, sacked $55@59.50.

Philadelphia: Demand spotty; supply fair; bran $60, standard midds. $61, red dog $64.

New York: Demand and supply good; trend steady; bran $55@58, standard midds. $56.50@57.50.

New Orleans: Demand fair; trend steady; supply ample; sacked, bran $55.50@56.25, shorts $59.50@60.25; bulk, bran $52.25@53, shorts $55.50@56.25.

Louisville: Demand slow; trend very weak, off an average of about $5; supply good; bran $50.60, mixed feed $52.35, shorts $54.60, middlings $54.80.

Denver: Demand sluggish; trend weaker; supply ample; shorts $48.75, bran $44.75, mill run $46.75.

Seattle: Demand fair; trend steady; supply limited; $46, common transit points, carlots.

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Portland: Demand good; trend higher; supply ample; $43.

Ogden: Supply normal; to Utah and Idaho: red bran and mill run $43, middlings $48; to Denver: red bran and mill run $50, middlings $55; to California: red bran and mill run $50.50, middlings $55.50, f.o.b. San Francisco and Los Angeles.

Los Angeles: Standard mill run $49, bulk, improved demand, firmer trend, tight supplies; red bran $55@56, bulk, slow demand, weaker trend, ample supplies.

San Francisco: Demand good; supply tight; millfeed $49.50; red bran $58.

MINERAL FEED

Ogden: Supply average; $113 in 50-lb. blocks; $103, granular, 50-lb. bags.

Ft. Worth: Demand fair; supply sufficient; all-purpose granules $90, block $97; mineral phosphorus 6% granules $105, block $110; cattle-sheep mineral 7% phosphorus granules $100, block $107; hog mineral phosphorus 3½% granules $87, phosphorus 2% $77 (all in 50-lb. paper bags).

Wichita: Demand moderate; supply sufficient; all-purpose with iodine, 50-lb. blocks $97.50, 100-lb. bags $92.50, f.o.b. plant.

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Denver: Demand fair; trend steady; supply ample; $155.

Portland: Demand slow; supply ample; trend unchanged; $42.

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.8% phenothiazine sheep mineral blocks $4 each.

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $85, ex-warehouse.

MOLASSES

New York: Demand fair; trend steady; supply good; blackstrap 16¢ gal., tank cars, tank wagons, f.o.b. New York.

Ft. Worth: Demand good; supply sufficient; blackstrap 13¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $28.92, seller's market price on date of shipment.

Kansas City: Demand moderate; trend steady; supply adequate; 12@12½¢ gal., tank cars, New Orleans.

San Francisco: Demand and supply good; $22, f.o.b. cars, Richmond, Cal.

Milwaukee: Demand fair; supply good; blackstrap 12½¢ gal., f.o.b. New Orleans.

Buffalo: Demand and supply good; trend steady; 16½¢ gal., f.o.b. Albany.

Memphis: Demand poor; trend steady; supply adequate; blackstrap 12½¢ gal., tank car, f.o.b. New Orleans and $29 ton, delivered Memphis, truck.

Denver: Demand fair; trend steady; supply ample; 12½¢ gal., New Orleans.

New Orleans: Demand fair; trend steady; supply adequate; 12½¢ gal., tank cars and trucks; 600-lb. customers' drums $8.33.

Cincinnati: Demand fair; trend steady; supply adequate; 12½¢ gal., New Orleans.

Louisville: Demand fair; trend steady; supply normal; 12½¢ gal., tank car lots, f.o.b. Gulf ports.

Los Angeles: Demand good; trend steady; supply adequate; $22, bulk, f.o.b. tank cars; $22.25, bulk, f.o.b. tank trucks.

Boston: Demand and supply steady; 16½¢ gal. in tank cars.

Minneapolis: Good demand for nearby; ample supplies; steady trend; 12½¢ gal., New Orleans; $33.50 ton, Minneapolis, tank trucks.

Seattle: Demand fair; trend easy; supply good; $22, f.o.b. Seattle, tank car lots or truck lots.

Atlanta: Demand fair; trend weak; supply good; citrus $18@22.50 in bulk, f.o.b. Florida producing points.

St. Louis: Demand slow; trend steady; supply ample; 12½¢ gal., New Orleans.

NIACIN

New York: Trend steady; $8 kilo, 10-kilo lots; $8.20 kilo, 5- and 2½-kilo lots; $8.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Philadelphia: Demand slow; supply fair; pulverized white $54.50; Canadian oat feed $29; domestic oat feed $25.50.

Cincinnati: Demand poor; trend steady; supply adequate; pulverized white oats $49@51.50; rolled $53.

Louisville: Demand fair; trend slightly easier; supply ample; reground $22.30; rolled oats $54.30; feeding oatmeal $76.80; pulverized white oats $53.30; crimped white $59.80.

Portland: Demand slow; supply ample; trend unchanged; rolled $65, ground $62, cleaned $65.

Los Angeles: Demand fair; trend unchanged; supply adequate; pulverized, local production $62.

Chicago: Demand fair; supply adequate; reground oat feed $15; fine ground feeding oatmeal $69@70; feeding rolled oats $78@79.

Memphis: Demand poor; trend firm; supply ample; 3½% protein, reground oat feed $20.25.

Boston: Demand and supply fairly steady; white pulverized $57; reground oat feed $21.

Minneapolis: Slow demand; ample supply; steady trend except for $1 drop in feeding rolled oats and an increase in pulverized; feeding rolled oats $77; feeding oatmeal $68; crimped $56; pulverized $48; reground $18.

Seattle: Demand and supply fair; trend firm; $53, bulk, truck lots.

OYSTER SHELL

San Francisco: Demand fair; supply ample; local $15, eastern $26.

New Orleans: Demand good; trend firm; supply ample; $25@25.50.

Cincinnati: Demand fair; trend steady; supply adequate; $24.45.

Louisville: Demand good; trend steady; supply normal; in paper, 80-lb. bags $23.45, in 50 lb. $23.70, in 25 lb. $25.95.

Portland: Demand good; supply ample; trend unchanged; western $24; eastern $38.50; granite grits $28; shell flour $24.

Los Angeles: Demand steady; trend unchanged; supply ample; $14.80.

Boston: Demand and supply steady; in paper $26.02.

Seattle: Demand and trend steady; supply good; $36, carlots.

PEANUT OIL MEAL

Milwaukee: Demand and supply fair; 26% $42.

Atlanta: Demand fair; trend weak; supply limited; 45% old process $60, sacked; 45% solvent $55, sacked, both f.o.b. Georgia and Alabama producing mills.

PEAT MOSS

San Francisco: Demand and supply fair; $3.65 bale.

Chicago: Demand fair; supply ample; $3.85@3.95, standard 7½ cu. ft. bale.

Philadelphia: Demand good; supply nil; $3 bale, f.o.b. pier, nominal.

Portland: Demand slow; supply ample; trend unchanged; $3 bale.

Los Angeles: Demand steady; trend unchanged; supply ample; Canadian 6.1 cu. ft. bales $3.75.

Boston: Demand and supply steady; $3.15 in carlots.

Seattle: Demand and supply good; trend firm; $2.80, bale, truck lots.

POTASSIUM IODIDE, U.S.P.

Chittenango, N.Y.: Demand good; supply adequate; 90% KI stabilized with calcium stearate, 200 lb. in 100-lb. cartons $1.30; 100-lb. cartons $1.32, 25-lb. cartons $1.45; freight paid to destination.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures, 250-lb. drums $1.35; 200 lb. in 100-lb. drums $1.35; 100-lb. drums $1.38; 25-lb. drums $1.41, f.o.b. Cincinnati.

POULTRY BY-PRODUCTS

Ft. Worth: Demand good; supply limited; 55% protein $110, f.o.b. north Texas plants.

Los Angeles: Demand good; trend steady; supply very tight; $1.90 a unit of protein.

Boston: Demand good; supply improved; $98, f.o.b. shipping points.

Atlanta: Demand fair; trend weak; supply good; $100.50, f.o.b. Georgia and Alabama producing mills.

Salisbury, Md.: Good demand; limited supply; $102, bulk, f.o.b. producers' plants.

RIBOFLAVIN

New York: Trend steady; feed grade (in feed supplements) 4½¢ gm. in 3.36 to 16 gm./lb. mixtures, freight prepaid or paid to destination.

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram in less than ton lots in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more; freight prepaid or paid to destination.

RICE BY-PRODUCTS

San Francisco: Demand good; supply ample; bran $45; polished $49.

Ft. Worth: Demand fair; offerings light; carlots, rice bran $35@36, f.o.b. south Texas rice mills; hulls $2.50, f.o.b. mills.

Los Angeles: Demand slow; trend unchanged; supply limited; bran, California production, high fat content $56.

Atlanta: Demand good; trend steady; supply limited; bran $67@69.

SCREENINGS

Buffalo: Demand fair; trend lower; supply good; ground, sacked $35.50, New York, lake and rail; unground, bulk $30, New York.

Minneapolis: Movement still by rail, but output expected to improve with opening of navigation; supplies still tight; price fairly steady; lights $10@20, mediums $21@30, heavies $31@40; Canadian bulk $26 for spot; Canadian ground $35; flaxseed screenings $35; oil type flaxseed screenings, nominally $45, basis 15%.

Chicago: Demand fair; supply ample; ground grain screenings $38.

Ft. Worth: Demand slow; supply sufficient; ground grain $28.

Cincinnati: Demand fair; trend steady; supply adequate; malt house $15@19, bulk, Chicago; Canadian screenings $39, bulk, Cincinnati.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.85@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.27.

SORGHUMS

Ft. Worth: Demand good; offerings light; carlots, bulk, No. 2 yellow milo $2.50@2.51, delivered Texas common points.

Los Angeles: Demand steady; trend firm; supply adequate; milo $2.62½ cwt., bulk.

SOYBEAN OIL MEAL

Ogden: Supply normal; $81@86.

San Francisco: Demand good; supply ample; $79.90.

Memphis: Demand slow; trend lower; supply plentiful; prime 44% solvent $63, f.o.b. Memphis.

Milwaukee: Demand good; supply fair; $54, bulk, Decatur.

Ft. Worth: Demand fair; supply sufficient; carlots: southern origin, 44%, first half May $71.60, June-September $73.80; 50% May $78.50; trucks: $72@73.

Minneapolis: Price down slightly from earlier in the week; fair demand; adequate supply; 44% $50, bulk, Decatur, for Minnesota shipment; 50% $57, bulk, Decatur.

Kansas City: Demand improved; trend firmer, up $1@2 over low for week; 44% protein meal for Kansas City shipment $52.50@53, bulk, Decatur.

Omaha: Demand poor; trend easy; supply ample; 44% $59.80 bulk.

Philadelphia: Demand and supply fair; 44% $54.50, bulk, Decatur.

Wichita: Demand good; supply adequate; 44% $68, 50% $76, f.o.b. Wichita.

Denver: Demand fair; trend steady; supply ample; $76.20.

New Orleans: Demand fair; trend steady; supply adequate; $67@67.50.

Cincinnati: Demand fair; trend steady to lower; supply adequate; $55.50@56, bulk, Decatur.

Portland: Demand slow; trend higher; supply ample; $50, f.o.b. Decatur.

Louisville: Demand fair; trend very steady; supply normal; $68.20, unchanged from last week.

Los Angeles: Demand fair; trend easier; supply ample; $75.90@76.90, bulk.

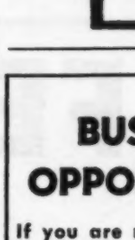
Boston: Demand about steady; supply adequate; 44% $54, 50% $60, both bulk, f.o.b. Decatur.

Chicago: There has not been any appreciable change in the soybean oil meal situation during the week ending April 29. Current prices match up closely with those of a week earlier. Bulk of the demand appears to be for fairly nearby shipment, and there is not much urgency for anything beyond the end of next week. Easiness in the meal futures market has had but little impact on the spot article with May deliveries in the pit off better than $1 ton. May soybean futures on the Chicago Board of Trade have encountered heavy liquidating pressure the past 10 days with a cut of around 600 lots in open commitment for that period. First tenders on open contracts on April 30 were liberal at 185 lots and all were retendered which usually connotes at least a technical weakness. Quotations: unrestricted, 44%, bulk $55.50@56, Decatur, and eastern trunk lines $53.50; 50% protein, bulk, unrestricted $60.50@61, and eastern trunk lines $58@58.50.

Atlanta: Demand fair; trend steady; supply ample; 44% $70.

Seattle: Demand fair; trend firm; supply ample; $83, carlots.

St. Louis: Demand slow; trend steady; supply ample; 44% $66.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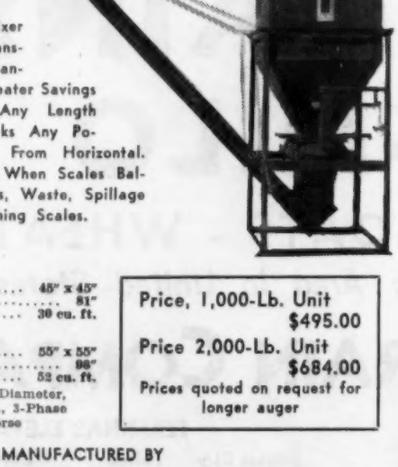
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TANKAGE

Ft. Worth: Demand slow; supply very scarce; 60% digester $104, Ft. Worth.

Kansas City: Demand slow, but some packers are sold up for a few weeks ahead; trend easier; kills are not heavy; 60% digester $97.50@98, bulk.

St. Paul: Demand better; adequate supply; price off about $4; 60% digester $100@104.

Chicago: Demand easier; supply fair; 60% protein $107.50.

Omaha: Demand poor; trend steady; supply ample; $107.50.

Wichita: Demand moderate; supply sufficient; 60% $110, f.o.b. plant

New Orleans: Demand slow; supply adequate; trend steady; $114.50@117.

Cincinnati: Demand good; trend easy; supply fair; 60% digester $95, Cincinnati.

Louisville: Demand and supply good; trend steady; $110@120.

St. Louis: Demand good; trend steady; supply short; $100.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand good; trend firm; limited offerings; 6¾¢ lb., f.o.b. north Texas area.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.50; in 25-lb. drums $1.55; freight allowed to destination.

New York: Demand and supply good; trend steady; 100-lb. drums $1.50 lb.; 25-lb. drums $1.55 lb.; f.o.b. manufacturing plants, freight allowed and goods insured to destination.

Rochester, N.Y.: Demand and supply good; trend steady; 100-lb. drums $1.50 lb.; 25-lb. drums $1.55 lb.; f.o.b. manufacturing plants, freight allowed and goods insured to destination.

WHEAT GERM MEAL

New Orleans: Demand and supply fair; trend steady; $103@105.

Buffalo: Demand fair; trend steady to higher; supply poor; commercial grade $95, f.o.b. Buffalo.

Chicago: Tight supplies; good demand; price firm at $99.

FDA Publishes List Of Safe Flavorings

WASHINGTON—As a further step in carrying out provisions of the new food additives amendment of the Food, Drug & Cosmetic Act, the Food & Drug Administration this week published a list of more than 150 seasonings and flavorings believed to be generally regarded as safe for use in food.

The list includes all of the most common household seasonings, such as paprika and vanilla, and numerous others which are known only to the gourmet or the commercial food processors—such as angelica, chamomile flower, estragole, and extracts of guava, juniper, orris root, zedoary bark and pipsissewa leaves.

Only naturally derived seasonings and flavorings are included in the list. Synthetic flavorings will be listed later, FDA officials said. In a parallel action of Nov. 24, 1958, FDA published a list of 188 food chemicals which it believes should be exempt from testing requirements of the law because they are generally regarded as safe for use in food.

Publication of such lists enables qualified experts throughout the country to give advice as to whether safety testing of any of these products is necessary, FDA said. By exempting products generally regarded as safe from requirements of the law, FDA is able to concentrate its attention on those for which safety testing is necessary, the agency added.

The latest list is divided into: (1) Spices and other natural seasonings and flavorings derived from leaves, roots, barks and berries and (2) essential oils, oleoresins (intermediate flavoring products) and natural extractives, including distillates. Proposed exemptions in the category of synthetic flavors are being studied, FDA said.

Interested persons are allowed 30 days after Federal Register publication of this proposal to make written comments to FDA. These comments will be considered by the commissioner of food and drugs in determining the status of the listed products under the food additives amendment, according to the FDA announcement.

VOTE FOR NEW FEED MILL

MARBLE ROCK, IOWA — Stockholders of the Farmers Cooperative Elevator, Marble Rock, have voted 33-10 for a new feed mill to be erected at a cost of $80,000-$85,000. Also, a storage bin voted for at an earlier meeting is to be built this summer.

EGG PLANT

(Continued from page 1)

said, this contract was of primary importance in launching the idea.

The man behind the corporation and who researched its possibilities is its head, W. H. Bancroft, Jr. Mr. Hill said some of Mr. Bancroft's patented egg production ideas are to be used in the plant.

Apparently, the only major task left to be accomplished before construction of the plant gets its final "green light" is completion of financial arrangements. Mr. Hill said it was his understanding that most of the money for the plant would come from a New York firm.

Mr. Hill said no contract had been let yet, but construction probably will start as soon as the financial end of planning is taken care of. It has been proposed, he said, that a two-story Butler Manufacturing Co. building, measuring something like 630 by 1,050 feet be constructed.

To Contract for Chicks

Best-of-the-Nest will establish contracts with farmers of the area to grow and supply 16-week-old initial and replacement pullets, Mr. Hill said. It is planned that the layers will remain in production for 16 months, and then replaced by a completely new flock.

According to Mr. Hill, feed supply arrangements have not been completed, but it has been proposed that someone build a mill near the plant to supply on a contract basis the enormous feed requirements. He said Best-of-the-Nest has no plans for manufacturing the feed. Much interest has been indicated from several sources in construction and operation of the feed plant.

It was reported also that the egg factory will have a fertilizer plant for processing droppings and facilities for canning and freezing poultry products.

Persons directly employed by the corporation initially are expected to number about 200 but, as Mr. Hill pointed out, the plant will boost employment by affiliated chick producers, feed manufacturers and other firms by several times that number.

About half of the employees working directly for the huge operation will be professional people, probably college graduates in poultry husbandry or with comparable training, Mr. Hill said.

As is presently planned, initial egg production will come from about a million layers, but this number is expected to grow. The plant structure is being designed for easy expansion, according to Mr. Hill.

To begin with, the primary market for Best-of-the-Nest will be the New York area, but it is believed that planned facilities for processing, packaging and shipping will enable the corporation to expand later into Cleveland and Pennsylvania markets. Mr. Hill said the site for the plant in the Johnstown area near Portage was picked because of its accessibility to these markets.

Health of the million birds will be strictly controlled. And there is the possibility, said Mr. Hill, that Lloyds of London will grant Best-of-the-Nest an insurance policy against loss of production caused by disease or death due to disease.

Ohio Pig Auction

HILLSBORO, OHIO — The first feeder pig auction in Ohio history will be held May 8 at the Hillsboro Producers stockyards here. Between 1,000 and 1,500 feeder pigs ranging from 30 to 110 lb. will be sold. They will be graded and grouped according to weight and quality and sold by the pound. Sponsoring the event are the Southern Ohio Pig Improvement Assn., the Ohio State University extension service and vocational agriculture departments in the area.

NEPPCO Outlines Program to Help Egg Producers

TRENTON, N.J.—A five-point program to help northeastern poultrymen fight off the economic squeeze that "has driven egg prices well below the cost of production" has been adopted by the Northeastern Poultry Producers Council (NEPPCO).

Representatives of the group plan to take the program directly to Ezra Taft Benson, secretary of agriculture. NEPPCO officials said the first three points can, and should be, instituted immediately by the secretary. The five-points were listed as follows:

"1. A national surplus fowl removal program, to be instituted immediately. Fowl prices are currently at such disastrously low levels that the liquidation of low-producing and over-age hens is economically unsound. Yet with the current burdensome surplus of eggs in the U.S., such flock reductions are essential.

"2. Immediate acceleration of the government's whole egg solids surplus removal program to the fullest extent possible to provide immediate relief from low egg prices . . ."

"3. The release of considerable quantities of surplus wheat at a price of 50% of the price support level for a period of 60 days to provide immediate feed cost relief.

"4. All effort be made to halt the use of federal funds by the Federal Housing Agency and the Small Business Administration for the purpose of expanding poultry production in an industry already over-burdened with surpluses.

"5. That all federal loans for use in the building or expansion of agricultural enterprises be placed under the jurisdiction of the U.S. Department of Agriculture.

"There is no question but that the poultry industry of the northeast is facing a financial crisis," declared Ernest F. Smith, Jr., NEPPCO president. "Unless quick action is forthcoming we face the prospect of having many family farms driven to the wall. Others will suffer an economic hardship from which it will take years to recover."

Kansas Feed Firm Begins Remodeling, Expansion Program

GIRARD, KANSAS—Work is now in progress on a $75,000 expansion program by the Quality Milling Co., Inc., Girard. The program includes remodeling, additional storage facilities and some $30,000 in new equipment.

The firm is owned and operated by three brothers, John D. Vietti, Gene Vietti and Don Vietti.

It was reported that the expansion program will put the firm in a position to handle all types of incoming ingredients in bulk, and also to move out all finished formula feeds in pellet, crumbles or mash in bulk. All mixing will be completely mechanical, and all ingredients will be handled by machinery. A large under-track hopper dump will be used in unloading hopper cars.

The company now operates two 7-ton bulk delivery trucks, and expects to expand this phase of the operation in the fall.

More than 100 tons of additional bulk feed storage will be added with outside steel overhead bins, so that trucks can load beneath.

A new facelifting on the building has been completed. The oldest building was built in 1881 and still stands as it was built, with newer elevator and building adjacent to it.

The remodeling job is expected to take all summer, and should be ready for fall business.

Total capacity of the new plant will be 100 tons a day.

AFMA

(Continued from page 1)

preliminary discussions of eggs, pork and poultry meat. Three men will then interpret the information and ideas and their significance to the feed industry and agriculture. Following, will be a period when delegates, attending in the Grand Ballroom, can ask questions of the program's participants and have them answered on the huge screen, measuring 15 by 20 ft.

Coordinator of the program will be Oakley M. Ray, director of market research for AFMA. Mr. Ray will act as "master of ceremonies" from the origination point of the program.

The discussion and demonstrations on production and marketing of eggs will be conducted by Chester B. Franz, A. V. Scollard and Hobart Creighton. Mr. Franz is the owner and operator of a poultry processing and distributing company in St. Louis, Mo., selling locally, nationally and internationally. He has been chairman of the board and director of the executive committee of the Institute of American Poultry Industries. Mr. Scollard is company manager, Safeway Egg Department, Safeway Stores, Oakland, Cal. He is responsible for egg procurement, operation of 23 egg processing plants and egg sales. Mr. Creighton is an Indiana egg producer, past president of the U.S. Record of Performance Breeders Assn., and Poultry and Egg National Board.

The discussion on pork will be handled by William C. Haase, William C. Purdy and Keith Myers. Mr. Haase is the swine specialist for Swift and Co., Chicago. Mr. Purdy is director of meat merchandising, Jewel Food Stores, Chicago. Mr. Myers is executive secretary, National Swine Growers Council, Grundy Center, Iowa.

The discussion and demonstrations on poultry meat will be handled by R. Frank Frazier, Joseph H. Mueller and Chester B. Franz. Mr. Frazier is executive vice president, National Broiler Council. Mr. Mueller is the national poultry and seafood buyer for the National Tea Co., Chicago.

Those who will interpret the preceding discussions include: Fred W. Hoover, Jr., president, Albers Milling Co., Los Angeles; E. F. Dickey, president, Honeggers' & Co., Fairbury, Ill., and Dr. G. B. Wood, head, department of agricultural economics, Oregon State College.

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Feed Men to See 100 Exhibits at Industry Show

CHICAGO — Officials of the National Feed Industry Show pointed out this week that some 100 firms will have exhibits at the 1959 show, being held May 10-13 at the Conrad Hilton Hotel in Chicago.

The show is being held in conjunction with the annual American Feed Manufacturers Assn. convention. The AFMA meeting will take place May 11-13. The combined events are expected to attract more than 2,500 persons.

(Also see schedule on page 6.)

Companies supplying feed ingredients, machinery and other goods and services will have exhibits at the show.

Sunday, May 10, has been designated as "advance look" day at the show. No badge or registration will be required for admittance. Starting Monday, May 11, an official AFMA convention registration will be needed for admission.

The show will be open each afternoon for four days.

AFMA general convention sessions will be held the mornings of May 12 and 13. Committee and other meetings will take place May 11.

PENB

(Continued from page 7)

The new amendment increased board membership from 30 to 36.

Recognizing the importance of answers to questions arising from the recommendation that PENB cease solicitation of investments from the broiler industry and stop broiler promotion, Ralph J. Thomas, newly elected president, has scheduled a special meeting of the board of directors for May 25.

The recommendation, PENB said, was made by vote of a small majority at the convention.

Here are some of the questions which PENB says are being asked by leaders in the poultry industry and by leaders in business and educational fields as a result of the recommendation:

"Shall PENB: Cease broiler promotion? Refuse to answer inquiries on broilers in person, by mail or by phone? Cease providing educational and promotional material on broilers to teachers, home economists, food editors and writers and other opinion-influencing people? Cease writing stories, developing posters, booklets and other consumer aids on broilers? Cease making available to communicators its exclusive collection of photographs on broiler use? Stop developing tie-in promotions with other products involving broilers? Cease planning any type of promotional or educational campaigns involving broilers?"

In a letter to members of the board of directors, Mr. Thomas spelled out the changes required in the amended bylaws approved by the board April 15 to put the recommendation into effect. They are, briefly:

"(1) Poultry meat as now used in the bylaws shall not refer to the products of the commercial broiler industry. (2) The board of directors must be reduced from 36 to 33 by the omission of three representatives from the commercial broiler industry. (3) Executive committee structure must be changed due to the deletion of a member from the broiler division on the board of directors. (4) Commodity committees must be reduced from three to two, namely an egg and other chicken meats committee and a turkey committee."

Mr. Thomas urged each director to get the sentiment of poultry industry leaders in his region to use as a guide in casting his vote on whether the amendment shall or shall not be adopted.

Pfizer Conference To Hear Drew Pearson

NEW YORK—Drew Pearson, a top Washington columnist who is also a crusader on the world food front, will address an international agricultural meeting May 9 at Terre Haute, Ind.

Author of the column, "Washington Merry-Go-Round," Mr. Pearson will speak on "America's Secret Weapon" before an audience of European government agricultural officials, scientists and feed industry executives and their U.S. counterparts. The address will be given at the banquet ending the annual research conference at the agricultural research and development center of Chas. Pfizer & Co., Inc.

Some 500 persons, including about 30 specialists from 10 European nations, are expected to attend the Pfizer conference.

Mr. Pearson was invited by J. Jerome Thompson, vice president of the New York pharmaceutical firm and general manager of the firm's agricultural division, "because of Mr. Pearson's interest in domestic and foreign food problems and agriculture," it was announced.

The conference is part of the nine-day International Animal Feed Symposium sponsored by the U.S. Department of Agriculture and the Soybean Council of America.

Missouri Convention To Answer Questions On Trade Topics

JEFFERSON CITY, MO.—Members of the Missouri Grain, Feed & Seed Assn. are being asked by association officers to bring with them questions for answering during various sessions of the group's annual convention to be held here May 15-16 at the Hotel Governor.

Topics mentioned include: Grain bank, integration, food and drug regulations, uniform grain storage agreement, commodity operations, price supports, feed merchandising, seed merchandising and veterinarian-feed dealer relationships. There will be persons on the program to answer questions on these subjects.

A brief outline of the convention program to be staged in Jefferson City's Hotel Governor was announced as follows:

May 14—2 p.m., set up exhibits; 5 p.m., registration desk opens; 6:30 p.m., directors and officers meeting.

May 15—8 a.m., registration desk opens; 9 a.m., program sessions; 10 a.m., ladies brunch; 1:30 p.m., afternoon program session; 4 p.m., business meeting; 5:30 p.m., social hour; 6:30 p.m., banquet.

May 16—8 a.m., registration desk opens; 9 a.m., program sessions; noon, luncheon.

. Association members were advised to make hotel room reservations as soon as possible.

Feed Suit Answered In Birmingham Court

BIRMINGHAM, ALA.—An answer has been filed by City Produce Co., Guntersville, and Harold L. Green, its president, defendants in a suit for $391,270.22 filed by Aubrey Feed Mills, Inc., Louisville, Ky.

Aubrey had asked for a receivership, claiming that City Produce, which had been buying chicken feed from the Louisville firm, had executed a mortgage deed for $110,000 to Ralston Purina Co. and had failed to pay its feed bill.

According to the court record, City Produce questioned Aubrey's right to sue in an Alabama court and further alleged that charges made by the Louisville firm were "greatly in excess of market prices on the date of delivery" and that consequently it does not owe the amount specified by the plaintiff. City Produce contends that Aubrey at one time consented to revise its charges, but did not do so.

The Guntersville company stated also in its answer that it "was unable to purchase feed from other suppliers because defendant (City Produce) was afraid plaintiff (Aubrey) would immediately institute suit on the erroneous balance if defendant attempted to purchase feed from others and thus impair defendant's credit standing with other suppliers."

The petition said such arrangements were made, however, by City Produce with another supplier to purchase feed "after plaintiff notified defendant he would have to make payments on the erroneous charges or no further feed would be shipped."

City Produce's answer continued, "When such arrangements were made with another supplier, plaintiff filed instant suit and no other supplier would thereafter extend any credit to defendant and defendant has been forced to pay cash for all feed since the suit was filed."

The case is to be set down in U.S. District Court at Birmingham for an early hearing.

HOLDS GRAND OPENING

UMATILLA, ORE.—Grand opening of the Umatilla Feed & Seed Store was held April 30, A. W. Easton, owner, announced. Opening festivities featured such events as the awarding of free baby chicks. The store will handle a complete line of feeds and diversified farm supply needs.

I. S. Riggs to Speak At Northwest Meeting

MINNEAPOLIS—I. S. Riggs, chairman of the board of the American Feed Manufacturers Assn., will speak to members of the Northwest Feed Manufacturers Assn. at their May 4 meeting at the Calhoun Beach Hotel here.

Mr. Riggs is vice president in charge of the feed division of the Quaker Oats Co., Chicago.

The meeting is the last of the regular season. It will begin with a social hour at 5:30 p.m., and dinner—a smorgasbord—will be at 7 p.m.

Merck Reports Boost In Sales, Earnings

RAHWAY, N.J.—Merck & Co., Inc., reported an increase in both sales and net income during 1958.

The recent report to stockholders shows consolidated net sales of $206,636,000 in 1958, compared with $186,937,000 in 1957, and consolidated net income of $27,718,000, equal to $2.64 per share of common stock. This net income compared with $23,094,000, equal to $2.21, in 1957.

Company gross margins improved during 1958, the report said, principally because of introduction of new products, elimination of outmoded products and increased efficiency in production processes.

Among the highlights of the year's operation, as listed in the report, were "the continuing rise in sales of the Merck chemical division's agricultural and animal health lines of products and the increasing stature Merck has gained in this growing field."

Among new products introduced by the firm during the year was Agrozyme in the field of animal science. Agrozyme is an enzyme product used to increase the nutritional value of barley as a poultry feed ingredient and it is now undergoing trials as an additive for beef cattle feeds. Another product developed during 1958 was Sulfabrom (sulfabromomethazine), a long-acting sulfa drug, for treating pneumonia, foot rot and diphtheria in cattle. Hepzide (nithiazide), a feed additive, was tested and subsequently adopted for use by commercial turkey growers as a preventive against blackhead.

The report said the animal health packaged goods line, introduced in late 1957, was augmented in 1958 by the introduction of a separate, packaged line for professional veterinary use.

Introduced by the chemical division early in 1958 was the drug Glycamide, for coccidiosis. This "contributed substantially to first half sales," the report said. "Field problems then developed and during the last half of the year sales of Glycamide were markedly lower although many users continue to achieve very satisfactory results with this product. Another Merck coccidiostat, Nicarb, maintained a leading position in this market."

The report said research efforts were intensified in the entire field of coccidiosis control during 1958.

Named 'Admiral'

HOUSTON, TEXAS—The Texas Navy has been "reactivated" and one of the five admirals appointed by the Texas governor is a feed man—Lorne F. Van Stone, president of Uncle Johnny Mills, Houston. Mr. Van Stone, who is a boating enthusiast and current Commodore of the Houston Yacht Club, was commissioned recently in a ceremony in which the governor reviewed the Texas Navy, a flotilla of 203 units. The insigne for the Navy uniforms are being struck from the same molds which fabricated them originally in the days when Texas was an independent republic. The principal activity of the reactivated navy will be tied in with civil defense, providing organized means of evacuation along the Texas coast in case of a wartime attack or other disaster.

DEHY OUTPUT

(Continued from page 7)

were not satisfied with the price they received for hay last year. Now that dehydrators have made offers that are 50% to 100% higher than last year, more farmers would be willing to seed with alfalfa, but it is now rather risky because of the lateness in the season.

Because of the lack of hay, National Alfalfa Dehydrating & Milling Co., Kansas City, is closing two plants representing four drums. Other dehydrators are reportedly trying to outbid each other for available alfalfa.

This area normally produces about 90,000 to 100,000 tons of dehydrated alfalfa in a season. If reports on the available alfalfa are accurate, this production could be reduced by 40,000 or 50,000 tons.

At the Findlay meeting, Santoquin was one of the main topics discussed. Dr. Lynn Romoser of Monsanto Chemical Co., St. Louis, explained some of the technicalities involved in the use of this newly-approved antioxidant. Joseph Chrisman, American Dehydrators Assn. executive vice president, reviewed the history of Santoquin and told of the work that has gone into its development and subsequent clearance for use by the Food & Drug Administration. W. S. Thompson, feed control official for Ohio, spoke on proper labeling when using Santoquin. Marvin Rohloff, president of the Alfalfa Processors Assn., explained methods of applying Santoquin.

Another speaker was Ralph Beermann, Beermann Bros. Dehy, Dakota City, Neb., ADA president.

Burrus Reports Profit Increase

DALLAS, TEXAS—Net profit of Burrus Mills, Inc., Dallas, for the nine months ended March 31, 1959, were $2,929,000, after all taxes and charges, J. P. Burrus, president of the company, has reported to stockholders. This compares with $2,105,000 earned in the similar period last crop year, an increase of 39%.

Mr. Burrus said that despite the revolution in Cuba, the earnings of the company's Havana properties have not been seriously curtailed, and expressed the opinion that the outlook for the company's Cuban operations was good.

Satisfactory earnings for the final quarter of the present year were forecast by Mr. Burrus.

MARKETS

(Continued from page 2)

Bran declined $4.50 and middlings dropped $6.

Corn was off 5¢ but regained 1¢ of the loss. Oats and barley declined 1¢ and feed wheat held unchanged.

Molasses stabilized and animal tallow held steady.

Soybean oil meal, both 44% and 50%, held about steady, but prices are likely to work higher, because, it was said, not enough forward bookings were made. Gluten meal dropped $2 and cottonseed oil meal was off $1. Linseed oil meal didn't do much because of the uncertainty of the government's flax program.

Meat scraps declined $2.50 and fish meal dropped $3.

Gluten feed was off $2; brewers' grains off $1 to $2 and alfalfa meal off $2. Distillers' grains and hominy held steady.

Running time of formula feed manufacturers averaged 40 hours last week. In the preceding week most mills failed to achieve the 40-hour mark.

Southeast

The broiler feed business in the Southeast is reported to be about unchanged from last week. Feed mills

continue to report their running time as being about steady.

The beef and dairy cattle business continues on the slow side with a slight improvement in hog feed.

Georgia continues to increase the placement of chicks on the farm, while the other southeastern states remain practically unchanged. Broiler prices advanced 1¢ lb. this week to 16¢ and 17¢ lb. f.o.b. the farms—mostly 16¢.

Another distressing element in the feed business is that eggs are wholesaling at 25¢ doz., which does not pay for the feed and upkeep of the hens.

The price of corn dropped 1¢ bu. this week, due to good supplies and poor demand. The major proteins remain practically unchanged, and most of the feed ingredient buyers look for them to remain at about the present levels and do not see very much fluctuation in prices before the new crop.

All distressed citrus pulp that was loaded in cars on track in Florida has been disposed of, and with the mills operating on slower time, it is showing a tendency of causing the market to be a little firmer.

Central States

The past week witnessed a more close-to-normal seasonal demand for hog and poultry feeds and a number of manufacturers have been surprised by the improvement noted in the call for cattle feed. This latter betterment is a rather unusual development as pastures are beginning to shape up very nicely and, logically, there would be less turning to mixed feeds by cattle feeders at this juncture. Call for hog feeds is holding up very well also.

On the poultry feed side of the picture, manufacturers were rather uniform in reporting a more widespread demand for chick-starter, and, of course, this in turn, would seem to presage a later improvement in the demand for other types of poultry feeds as the season moves along. So far, the call for poultry feeds from big-time operators of egg-producing farms, has not shown much of any reaction to the egg price situation.

South Central

Feed sales are going a little better this week. After a long period of up and down demand, good the forepart of the week and sluggish thereafter, business appears to be leveling out to a fairly steady movement. Running time generally is on a five-day basis with an occasional short overtime run. By way of comparison, most mill representatives say that their April deliveries are equal to or slightly higher than those of a year ago.

Pig starter and grower sales are good and in an improving trend. Turkey starter movement is also enlarging. Although turkey raisers are not optimistic about their returns this year, most of them are starting their usual number of poults. But egg producers are resentful of the present low prices and a cut-back in flocks seems certain. Cattle feed demand is a little surprising as it is stretching out longer than expected.

Price lists are expected to be a little lower this week, due to lower millfeed and corn prices.

Ohio Valley

Although sales of formula feeds were reported in fairly steady tonnages this week, the over-all situation was said to lack any indication that the business volume can be expected to have much change during early May.

With increasing availability of pasturage and the requirement that farmers give their undivided attention to the weather-delayed spring plowing and planting activities, the feeding of farm animals is currently being given secondary consideration. The Jewish holidays this week, which decreased receipts at area stockyards, were a contributing factor.

Several manufacturers reported that sales of starter feeds for baby chicks and hogs were holding steady, while sales of turkey feeds at last are showing some signs of improvement.

The depressed situation with respect to eggs and poultry remained unchanged this week, with supplies about ample for the fair demand, excepting for 2½@4 lb. fryers, which advanced ½¢.

Area mills reported they generally are continuing operations on 40-hour schedules.

Pacific Northwest

Feed ingredient prices continued to rule firm to stronger during the past week. Trading was marked by the fact that prices as a whole averaged slightly higher than the previous period.

Trade sources indicated that trading was moderately active with a fair demand from Portland and Seattle mixers on a nearby basis.

Offerings of some important items continued short of the full trade demand. An active export interest in wheat millfeeds developed during the week with the sale of some 15,000 metric tons to Japan for August shipment from Pacific Northwest flour mills.

Feed handlers indicated that formula feed trading was maintained with a very good movement of the various poultry feeds which offset declining dairy feed sales.

Pacific Northwest alfalfa hay markets continued to remain sluggish under a seasonally slack demand. Pastures and new crop alfalfa were benefited by warm temperatures and rain showers.

However, good quality dairy feeding alfalfa was in limited supply and held by firm hands. Prices held unchanged at Portland and Seattle.

Pacific Northwest feed grain trading saw corn listings drop $1 ton with barley prices averaging 50¢ up and with milo unchanged to 50¢ higher.

Soybean meal prices were mostly $2.50 ton higher while cottonseed meal was scarce and sold $1 to $2 above last week's close.

Producer paying prices for eggs were unchanged to 1¢ doz. lower at Portland. Breeder turkey prices eased 1¢ lb. at Portland area processing plants where they brought growers 24¢ lb. on an eviscerated basis. Producer paying prices for live hens closed unchanged to 1¢ lower at the inside of the general range.

Prices for choice grade fed steers closed steady with the previous week's opening trading at North Portland where they brought ranchers $30 cwt.

Mountain States

The opinion of formula feed manufacturers in this area this week appears to be that their sales volume has decreased somewhat from the previous week. However, the general run of business is still much improved over a year ago at this time.

Feeds getting the most demand this past week were chick starter and also drylot cattle feeds. However, starter volume was down from the previous week. Drylot cattle feed demand is about the same. Most of these feeds are still being purchased by dealers for immediate sale rather than inventory buildup.

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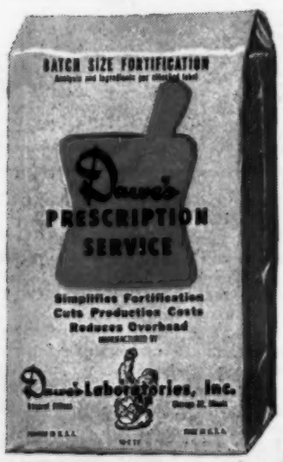

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